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American Foundryman

A PUBLICATION PRESENTING ASSOCIATION AND CHAPTER ACTIVITIES

Industry Offers Wholehearted Co-operation to Army ... See Page 2—In-Plant Training of Workers for War ... tion, by W. F. Patterson, See Page 9—Western Michigan ... Is Winner of the National Membership Contest, See

May
1942

"WE"

NEVER in the history of our country has the word "We" been of more significance. It is a small word with a mighty meaning. Webster states that it applies to "people in general, including the speaker." It means more than that. By inference, it means friendship and co-operation and when subject to this interpretation, it is the foundation upon which the winning of this present war depends.

In staging the Foundry and Allied Industries Show and the 46th Annual Convention of the American Foundrymen's Association in Cleveland, April 20-24, you, as members of the A.F.A., have made an outstanding contribution toward the promotion of the "We" spirit throughout the foundry industry, and those industries closely allied with it. In fact, the over 10,000 registered attendance at the convention and show is ample proof that the foundry industry, individually and collectively, is co-operating to its utmost in this war effort through the exchange of information for the solution of production problems.

The tenor of the 46th Annual Convention was one of mutual co-operation for the successful prosecution of the war. In the technical sessions, which were the best attended of any previous convention, a vast amount of important information on production phases of the castings industry was exchanged—all with the idea of increasing quality and quantity production of castings for wartime purposes.

The Foundry and Allied Industries Show provided a medium for consultation between manufacturers of foundry supplies and equipment and foundrymen on ways and means to better utilize equipment and supplies now on hand. Special war production sessions brought to foundrymen the requirements of the government during this war and conveyed to them definite information on priorities and price control. Plant defense and worker training received special emphasis. In all these sessions, the "We" spirit was evident through the exchange of information critical to the successful winning of this war.

Nor did the exchange of information stop with the formal convention sessions and exhibition. In small groups and large, on street corners, in hotel lobbies and rooms—everywhere that foundrymen gathered—discussions on specific questions were in progress throughout the week. Much valuable information, seldom recorded, came to light in such discussions and new friendships were made. In both the formal and informal group discussions, many vexing problems, some of which had been holding up war production, were solved.

Where, except in a national gathering of foundrymen, such as the past convention, would it have been possible for so large an amount of information, directly applicable to the solution of production problems, which will contribute to our successfully winning the war, to have been exchanged? The results of this gathering of foundrymen from coast to coast are evidenced by the unanimous opinion of those who attended, that the 1942 A.F.A. Convention was the most timely and instructive of any convention thus far held by the Association. It is only through the co-operation of members of the Association that such a worth while gathering is possible. It is a further expression of the "We" spirit in the foundry industry and of its determination to co-operate to the utmost in supplying the implements of war necessary for complete victory.

The motto of your Association is "Coming together is a beginning . . . keeping together is progress . . . WORKING together is SUCCESS." The 46th Annual Convention and Foundry and Allied Industries Show is tangible evidence of how the sentiment, as expressed in the motto, can be of service to our country.

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American Foundryman

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Foundry Industry Offers Wholehearted Co-operation to Assure Victory

Western Hemisphere Conference Contributes to Solidarity Among the Americas — War Production Problems, Priorities, Substitutions Discussed at Convention Sessions—Army and Navy Officers Urge Greater and Speedier Production—Importance of Castings in War Effort Emphasized.

THE consensus of opinion among members and guests who attended the 46th Annual Convention of the American Foundrymen's Association and the Foundry and Allied Industries Show in Cleveland, April 20-24 inclusive, was that it was the most timely and educational ever held in the history of the Association. The over 10,000 registrants at the convention, without exception, voiced a determination to contribute their utmost to the successful prosecution of the war and to the assurance of complete victory for the United Nations over the Axis aggressors. Determination to increase quality and quantity production of arms and machines for our fighting forces was everywhere evident. Increased production schedules were spoken of, not in awe, but with determination. Companies reported that their war production had been doubled, tripled and, in some cases, quadrupled over what was thought possible a few months ago. All who attended were hungry for information on methods and techniques that could be used to secure even greater production than had been previously imagined.

Sessions Well Attended

From the opening meeting to the final technical session on Friday, interest in the production phases of foundry operation was evident. All meetings were extremely well attended. Technical meetings were the largest ever held in the history of the Association. This was partly due to the excellent technical program and partly to the increased interest in production problems demanded by the war effort.

The convention was officially opened on Monday morning by President H. S. Simpson, National Engineering Co., Chicago. In welcoming the Association to Cleveland, Mayor Frank J. Lausche stated that he was well familiar with the foundry industry, as he had at one time operated the Euclid Foundry, Euclid, Ohio. Following the Mayor's address of welcome, Col. H. M. Reedall, Cleveland Ordnance District, U. S. Army Ordnance, gave a short address on the part that the foundry industry is playing and must continue to play in the war production program. Those who attended the meeting were privileged to hear Maj. Gen. L. H. Campbell, Jr., Ordnance Department, Washington, D. C., speak realistically on the improvement in the qual-

Interest in the Foundry and Allied Industries Show, held in connection with the Convention, was intense.

ity of castings for ordnance which has occurred since the first World War. General Campbell said, "We in the Ordnance Department, after the last war, started to try to design away from castings due to our sad experience in that war, but you men are rapidly bringing us back to castings by your own efforts and your own skill."

First Western Hemisphere Congress

The past convention also was the First Western Hemisphere Foundry Congress and on Monday evening a large group

Past President H. Bornstein (left) presents the J. H. Whiting Gold Medal of A.F.A. to A. L. Boegehold.

gathered in the Pine Room, Hotel Statler, following the reception to Central and South American guests, to hear papers presented by authors from our sister republics. It was significant that Harold J. Roast, Canadian Bronze Co., Ltd., Montreal, and a director of the American Foundrymen's Association, representing our Canadian membership on the north, presided at the meeting. He was assisted by J. S. Vanick, International Nickel Co., New York City, who has spent some time in South and Central America and, therefore, is quite familiar with the foundry industry in those countries. In opening the meeting, Mr. Roast greeted the guests in their own language. Heading the delegation was Dr. Miguel Siegel, Instituto de Pesquisas Technologicas, Sao Paulo, Brazil, and H. A. Hunnicutt, Industrias Chimicas Brasileiras, Sao Paulo.

Annual Business Meeting

Again this year, as in other years, the annual business meeting of the Association, held on Wednesday, was one of the high spots of the convention. President Simpson presided at this meeting and gave an inspiring address on the part that the foundry industry was playing in the war effort and pledged full cooperation through increased production of castings required for various types of armament.

Awards Presented

At the conclusion of President Simpson's talk, C. E. Westover, Executive Vice President of A.F.A., reported on the activities of the Association during the past year. The meeting was then turned over to Past President L. N. Shannon, Stockham Pipe Fittings Co., Birmingham, Ala., chairman of the Board of Awards of the Association, who personally bestowed on John E. Galvin, President, Ohio Steel Foundry Co., Lima, Ohio, the John A. Penton Gold Medal of the Association for his unfailing helpfulness and generosity in contributing to the general advancement of others in the steel castings industry. The J. H. Whiting Gold Medal was presented to A. L. Boegehold, Chief Metallurgist, General Motors Research Laboratories, Detroit, in recognition of his outstanding contributions

Dr. M. Siegel, extreme left, and H. A. Hunnicutt, extreme right, and Mrs. Siegel, center, pose with Mrs. Simpson and Mrs. Shannon and other members of the South American delegation.

to the field of metallurgical research in cast iron and malleable iron by Past President H. Bornstein, Deere & Co., Moline, Ill.

Others recognized for their contributions to the industry and the Association were Pat Dwyer, engineering editor, *The Foundry*, Cleveland; Roy M. Allen, consulting metallurgist, Bloomfield, N. J., and President Simpson, to whom Honorary Life Memberships in the Association were granted.

Rear Admiral C. H. Woodward, Assistant Director, Office of Civilian Defense, Washington, D. C., was scheduled to present an address on plant protection during the war. However, Admiral Woodward was delayed and, in his absence, Lt.-Commander S. J. Singer, U. S. N., of his office presented Admiral Woodward's stirring address.

Past and present officers and directors attending the alumni dinner. Left to right—Jack Coffman, Los Angeles; Fred Wolf, Washington, D. C.; W. H. Schulte, Supt. of Exhibit Construction, Chicago; Dr. H. Ries, Ithaca, N. Y.; C. R. Culling, St. Louis, Mo.; S. C. Vessy, Cleveland; S. Wells Utley, Detroit; Vaughan Reid, Detroit; S. V. Wood, Minneapolis; R. F. Harrington, Boston; O. A. Pfaff, Mishawaka, Ind.; E. W. Beach, Muskegon, Mich.

John E. Galvin (left) receives the John A. Penton Gold Medal of A.F.A. from Past President and Chairman, Board of Awards, L. N. Shannon.

23rd Chapter Formed

Reported at the annual business meeting also was the formation of the 23rd chapter of the American Foundrymen's Association, to be known as the Eastern Canada and Newfoundland Chapter. Director Harold J. Roast of Montreal, who was instrumental in the formation of the chapter, reported its organization.

War Production Sessions

Outstanding in the program of the convention were the sessions devoted directly to war problems of the foundry industry. Three such sessions were held on Tuesday. At the first session, where Rear Admiral George Pettengill, Retd., Commandant and Superintendent, Naval Gun Factory, Washington, D. C., was to speak, J. E. Crown, Master Mechanic, U. S. Naval Gun Factory, read Rear Admiral Pettengill's address under the title "What the Navy Wants and Expects from the Foundry Industry." Admiral Pettengill stated that the Navy wants and expects quantity, speed and quality from the foundry industry. He stated, "We need munitions now. A gun today is worth 10 tomorrow. Speed spells early victory."

Casting Price Ceiling Discussed

The second Tuesday session devoted directly to war problems was a discussion of Government price control of castings. At this session, D. D. Kennedy, Castings Div., Office of Price Administration, Washington, D. C., discussed ceilings for gray iron castings.

Training Victory Workers

The training of defense workers, a vital problem at present, was not overlooked. The training of such workers and foremen was discussed at a dinner held Tuesday evening, of which Wally E. George, Campbell, Wyant & Cannon Foundry Co., Muskegon, Mich., was chairman and G. J. Leroux, National Malleable & Steel Castings Co., Cleveland, was co-chairman. This meeting was the most successful ever held by the committees in charge of foreman training activities of the Association.

Plant Protection

Another important phase of our war effort was discussed on Wednesday, namely, plant defense. At this meeting, James R. Allan, International Harvester Co., Chicago, presented a *Code of Recommended Practices for the Protection of Life, Property and Production in the Foundry Industry During War Time.* The necessity of plant protection and the part the code will play in the war effort of our country was emphasized by Rear Admiral C. H. Woodward.

Apprentice Training

At another session on Thursday, Wm. F. Patterson, Chief of Apprenticeship, Department of Labor Standards, Washington, D. C., emphasized the necessity of apprentice training programs. He advocated the immediate training of apprentices below draft age to replace workers called to arms. Mr. Patterson said, "The core of any comprehensive training program is an apprenticeship program. The foundry industry has always been a leading exponent of sound apprentice training."

Production Clinic

The final session devoted exclusively to war problems was the one held Friday morning as a clinic to discuss the production of air-cooled aviation cylinders. The meeting was presided over by B. D. Claffey, General Malleable Corp., Waukesha, with Martin Qualantone, Supervisor, Cylinder Head Foundry, Wright Aeronautical Corp., Patterson, N. J., and Frederick Ayer II, Aluminum and Magnesium Branch, War Production Board, Washington, D. C., as co-chairmen. In addition to a discussion of the above problem, much information concerning the production of other types of aluminum and magnesium castings for aircraft was brought to light.

S. C. Vessy, Cleveland; C. E. Hoyt, Chicago; I. R. Wagner, Indianapolis; S. V. Wood, Minneapolis, and E. H. Ballard, Lynn, Mass., attend the annual alumni dinner.

WPB and OPA Participation

An outstanding and valuable feature of the convention was the cooperation displayed by departments of both the War Production Board and the Office of Price Administration in furthering the objects of the meeting. Three offices were set up and manned by WPB officials, representing the aluminum branch, contract distribution office, and foundry equipment and supplies unit. OPA representatives were in attendance for the non-ferrous castings section and the ferrous castings section.

Some 25 representatives of WPB and OPA were in attendance during the 5-day meeting, and both foundrymen and equipment and supply firm executives took the opportunity of consulting with them on their individual wartime problems.

Chapter Officer's Activities

As chapters of the Association are playing an increasingly important part in the activities of the Association, those in charge of the program believed that an opportunity for chapter delegates to discuss mutual problems would be of advantage. Accordingly, arrangements were made for a Chapter Delegate Conference on Wednesday of convention week. Two delegates from each chapter were asked to attend this meeting and discuss their chapter's problems. Following this very successful meeting, the chapter officers were entertained at dinner at the Hotel Statler with Vice President D. P. Forbes, Gunite Foundries Corp., Rockford, Ill., presiding.

The discussion at this year's conference was devoted to the part which chapters can play in the war effort of our country through dissemination of information on methods for increasing the production of war materials.

General Interest Sessions

It has been stated previously that attendance at technical sessions set a new record of interest. General interest sessions such as those on sand research, refractories, apprenticeship training, job evaluation and time study, etc., were extremely well attended.

Lecture Course Series

The series of lectures by Harry W. Dietert, Harry W. Dietert Co., Detroit, on modern core practices and theories was concluded on Friday, and Mr. Dietert has prepared the substance of his lectures in a book entitled "Modern Core Practices and Theories," which is available through the offices of the Association.

Engineering Instructors

The Engineering Instructors' dinner and session following the dinner was very interesting and Chairman F. G. Sefing, International Nickel Co., New York City, who is also chairman of the A.F.A. Committee on Cooperation with Engineering Schools, reported a very worthwhile discussion.

Foundry Sand Research

The foundry sand research sessions featured the third progress report on the investigation of the effect of elevated temperatures on the properties of steel foundry sands now being conducted at Cornell University, as well as several papers dealing with the durability of sand, sintering test, drying out of synthetic sands, and others.

Division Activities

The very fine work of the committees of the five divisions of the Association was evident in the large attendance at the sessions devoted to malleable, steel, gray iron, non-ferrous founding and patternmaking. The program of the Malleable Division this year featured a symposium on the annealing of malleable iron which soon will be available under one cover at the Association offices. Interest in the Steel Division program was amply shown by the fact that attendance at the steel sessions at this convention were the largest of any convention thus far held. The round table luncheon of the Steel Division also set a record for attendance.

The technical sessions were the best attended in the history of the Association.

Probably the most successful session staged by the Non-Ferrous Division was the round table conference and luncheon at which over 300 were present, although all sessions of the Non-Ferrous Division were well attended. The program committee of the Gray Iron Division had done its usual excellent job and provided papers of outstanding interest for all sessions. The gray iron shop course this year was devoted to a study of shrinkage in various types of castings.

The Patternmaking Division this year sponsored its first formal program of papers at two sessions. Reports indicate that interest in this, the A.F.A.'s newest division, is mounting and patternmakers are looking forward to increasing interest in the activities of the division.

Over 500 attended the annual banquet.

Cupola Research

Reports of various committees and sub-committees were presented at the Cupola Research Session by their respective chairmen, and discussed at considerable length. D. J. Reese, International Nickel Co., Inc., New York City, chairman of the Cupola Research Committee, presided at the meeting. This first presentation of findings on this important subject indicates that the committees on Cupola Research have been extremely active in compiling up-to-date information on cupola operation. Eventually the findings will be prepared in final form and will then be available in the Cupola Handbook to be published under direction of the A.F.A. Cupola Research Committee.

All in all, the technical sessions of the convention were built around the war effort with committees working toward securing all available information possible to obtain increased quality and quantity of all types of castings.

The Annual Dinner of the Association was a high point of the convention. Over 500 attended and enjoyed an excellent program which brought to each individual a greater sense of his responsibility in the present conflict. Following the introduction of the new officers of the Association, representatives of the Gray Iron and Malleable Founders Societies, and the reading of a telegram from the president of the Steel Founders Society of America expressing his regret at his necessitated absence, President Simpson, who presided, introduced Past President Henry S. Washburn, Plainville Casting Co., Plainville, Conn., who gave a short but moving address on "Our Men in the Armed Forces."

Following this address, President Simpson introduced Dr. Miguel Siegel of Brazil, who commented on the Western Hemisphere Foundry Congress as a token of better relations between the Americas. He outlined the industrial development of Brazil and said that with the help of the other Americas, the development would take place at an increasingly fast pace.

Annual Dinner Speaker

President Simpson then introduced Dr. Preston Bradley of the Peoples Church of Chicago, who gave an inspiring address on "What Are We Fighting For?" At the conclusion of Dr. Bradley's address, President Simpson turned the meeting over to F. J. Dost, Sterling Foundry Co., Wellington, Ohio, Chairman, Northeastern Ohio Chapter, hosts to the convention, who welcomed those in attendance and then introduced Leon F. Miller, Osborn Mfg. Co., Cleveland, chairman of the Northeastern Ohio Banquet Committee, who invited everyone present to remain for the dancing.

Exhibits Stressed Cooperation in Foundry War Production

The wartime aspect of this year's convention was dramatically emphasized at the Foundry Show, where over 200 manufacturers of equipment and supplies for the castings and allied industries displayed their products and services. Throughout the four exhibit halls the theme of every exhibitor's participation was Cooperation.

This year, many exhibitors had nothing to sell, their entire output being booked months ahead. Their representatives, however, did yeoman service in advising visiting foundry executives and operating men on how to make the best possible use of present equipment and sources of supply. Practically every display of materials and machines stressed their adaptability to increased production of cast parts for war materials, such as aircraft parts, bombs, gun parts, tanks, truck and tractor requirements and naval needs.

In addition, extensive displays of actual ordnance work from American foundries occupied a

prominent position in the Show. One of the most interesting exhibits, featuring the need for industrial training, was that of the Cleveland Trade School. A more complete description of exhibits at this Convention will be published in the June issue of *American Foundryman.*

Splendid Co-operation Evident

It would be impossible to stage such a successful event as the 46th Annual Convention of A.F.A. and the Foundry and Allied Industries Show were it not for the fine spirit of co-operation evidenced by members of committees of the Association, authors, chairmen of sessions and exhibitors. The strength of any association and its ability to serve its industry is based on membership and member participation. Never has the Association been in a position to render greater service to the industry in broadcasting information which will aid in the ultimate victory of our country in the present conflict. The extent to which we will be of service depends entirely on the cooperation of our members. The success of the 46th Annual Convention and Foundry and Allied Industries Show this year is tangible evidence of what has been done in the past through cooperation. Your continued and increasing cooperation will make the Association of even more value in the future.

Old Timers Meet Again at Cleveland Convention

WITH one successful try chalked up for 1940, your Association again sponsored a booth at its Cleveland convention where Old Timers might register on the Foundry Service Roll and receive buttons in recognition of from 25 to 50 years or more of service in the foundry industry. As was the case in 1940, the booth proved to be one of the most popular centers in the convention hall, providing as it did a place for Old Timers to renew acquaintances and review past experiences with each other. A welcoming committee, headed by B. D. Fuller, Cleveland, Ohio, and composed of T. C. Flinn, New York City; P. T. (Cap) Bancroft, Moline, Ill.; C. J. Miller, Fremont, Ohio; R. E. Wendt, Lafayette, Ind., and Henry Oehling, Cleveland, Ohio, was on hand to greet those who registered.

A survey of the Service Roll indicates that a total of 609 foundrymen registered, 61 of whom can boast of serving 50 years or more in the industry. Of those who registered, the longest service record was shown by Job Goostray, Hunt-Spiller Mfg. Corp., Boston, Mass., with 80 years. Five runner-ups were G. A. T. Long, Pickands Mather & Co., with 69 years; William Schneider, Western Bronze & Brass Foundry, Denver, Colo., with 67 years; D. J. Ryan, Allyne Ryan Foundry Co., Cleveland, with 64 years; Cap Bancroft, with 62 years, and B. D. Fuller, Lakewood, Ohio, with 61 years. Messrs. Goostray, Long, Bancroft and Fuller are Honorary Life Members of A.F.A. Others who registered for 50-year or more service buttons were:

For 59 years

Wm. E. Malpass, East Jordan Iron Works, East Jordan, Mich.

For 58 years

B. Bernbaum, American Crucible Co., East Cleveland, Ohio
J. A. Eckels, Erie Bronze Co., Erie, Pa.

For 57 years

C. T. Colvin, Colvin Foundry Co., Providence, R. I.
E. M. Ayers, Ayers Mineral Co., Zanesville, Ohio
John Gengenbacher, Youngstown Foundry & Machine Co., Youngstown, Ohio

For 56 years

F. McCarthy, Ironton Fire Brick Co., Ironton, Ohio
J. D. Babbitt, Combined Supply & Equipment Co., Buffalo, N. Y.

For 55 years

H. M. Oehling, National Malleable & Steel Castings Co., Cleveland, Ohio
H. M. Molder, American Stove Co., St. Louis, Mo.

For 54 years

Jas. A. Murphy, Jas. A. Murphy Co., Hamilton, Ohio
Theo. Hoste, Cleveland, Ohio
C. J. Miller, Fremont Foundry Co., Fremont, Ohio
David McIntosh, Sacks-Barlow Foundry, Inc., Newark, N. J.

For 53 years

H. A. Newbury, Newbury Mfg. Co., Talladega, Ala.
C. F. Carson, National Supply Co., Toledo, Ohio
M. K. Clark, Frankford Arsenal, Philadelphia, Pa.
George McNab, Hill-Acme Co., Cleveland, Ohio
L. P. Henry, Cadillac Malleable Iron Co., Cadillac, Mich.
A. J. Griffa, Standard Brass Foundry Co., Ravenna, Ohio
R. O. Perkins, Youngstown Foundry & Machine Co., Youngstown, Ohio
J. A. Leisk, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
David Campbell, Frederic B. Stevens, Detroit, Mich.

For 52 years

H. L. Demmler, Wm. Demmler & Bros., Kewanee, Ill.
E. A. Parker, Springfield Aluminum Plate & Casting Co., Springfield, Ohio
G. J. Reeling, Illinois Malleable Iron Co., Chicago, Ill.
Joe Richards, American Steel Foundries, Verona, Pa.
H. L'Amoureaux, Rybolt Header Co., Ashland, Ohio
J. R. Cooney, Watertown, Mass.
Fred Lemke, Quality Aluminum Castings Co., Waukesha, Wis.
A. H. Kramer, Advance Foundry Co., Dayton, Ohio
Frank J. Hein, Erie, Pa.
C. C. Kawin, Chas. C. Kawin Co., Chicago, Illinois
F. A. Yost, Dodge Mfg. Corp., Mishawaka, Indiana

For 51 years

G. W. Fleig, Smith Facing & Supply Co., Cleveland, Ohio
John A. Baas, Scott Valve Mfg. Co., Detroit, Mich.
F. J. Buckley, Kalamazoo Foundry & Machine Co., Kalamazoo, Mich.
Pat Dwyer, *The Foundry*, Cleveland, Ohio
F. G. Wuerthele, W. O. Larson Foundry Co., Grafton, Ohio
Oscar Schwegel, Dayton Casting Co., Dayton, Ohio
P. E. Peterson, Wentworth Institute, Boston, Mass.

For 50 years

N. S. Snow, Evansville, Ind.
Wm. Breymaier, Bucyrus Castings Co., Bucyrus, Ohio
Jack Fogarty, Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill.
Anton Straka, Westinghouse Electric & Mfg. Co., Cleveland, Ohio
Thos. Kaveny, Herman Pneumatic Machine Co., Pittsburgh, Pa.
A. D. Edwards, Woodruff & Edwards, Inc., Elgin, Ill.
C. A. Jackson, Shenango Foundry Co., New Castle, Pa.
F. W. Bauer, Bauer-Wilson & Bateman Co., Chicago, Ill.
J. D. Stoddard, Detroit Testing Laboratory, Detroit, Mich.
Ben Drewes, Zenith Foundry Co., West Allis, Wis.
J. H. Cochrane, Cochrane Brass Foundry, York, Pa.
M. L. McGuire, G. F. Pettinos, Inc., Philadelphia, Pa.
C. L. Becker, Frankhan R. R. Co., Canton, Ohio
R. H. Evans, Bradford, Pa.
J. A. Moore, Canton Electric Casting Co., Canton, Ohio
A. J. Becker, Wolverine Foundry Supply Co., Detroit, Mich.
A. Nelson, American Brake Shoe & Foundry Co., Chicago, Ill.
John Hill, Hill & Griffith Co., Cincinnati, Ohio
C. A. Breda, Allyne Ryan Foundry Co., Cleveland, Ohio
E. T. Doddridge, Wm. H. Nicholls Co., Richmond Hill, L. I., N. Y.

Thinking it over, we are beginning to believe that "Old Timers" isn't quite the right term, because even though one of these foundrymen has served four-score years and others almost three-score and ten, they're a pretty young bunch of fellows. In fact, we know they are!

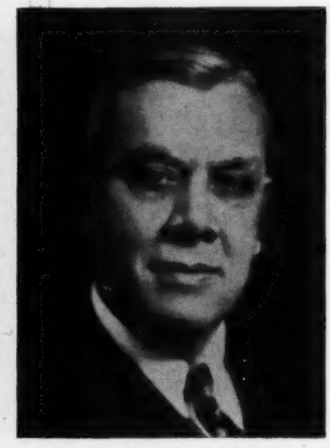
Forbes and Wilson to Guide Destinies of Association During the 1942-43 Year

AT the Annual Business meeting of your Association, held Wednesday, April 22, Duncan P. Forbes, Gunite Foundries Corp., Rockford, Ill., was elected president of the American Foundrymen's Association for one year to succeed H. S. Simpson, National Engineering Co., Chicago. Mr. Forbes was vice president of your Association during the past year. Succeeding Mr. Forbes to the vice presidency is L. C. Wilson, Reading Steel Casting Division, American Chain & Cable Co., Reading, Pa. Both Messrs. Forbes and Wilson long have been active in the work of the Association and have served on its Board of Directors.

In addition, the following five directors were elected to serve three-year terms as members of the Board of Directors:

Retiring President, H. S. Simpson.
J. E. Crown, Naval Gun Factory, Washington, D. C.
I. R. Wagner, Electric Steel Castings Co., Indianapolis, Ind.
S. V. Wood, Minneapolis Electric Steel Castings Co., Minneapolis, Minn.

Vaughan Reid



W. L. Woody

W. L. Woody, National Malleable & Steel Castings Co., Sharon, Pa.

In accordance with Article V, Section 3, of the By-laws of the Association, which states that the Board of Directors shall elect a successor to fill any vacancy on the Board due to any reason other than retirement,

Vaughan Reid, City Pattern Works, Detroit, Mich.,

was elected at a meeting of the Board of Directors on Monday, April 20, in the Public Auditorium, Cleveland, to fill the unexpired term of W. J. Corbett, whose untimely death was recently announced.

Executive Committee Elected

The newly elected officers took office at a meeting of the Board of Directors held on Friday, April 24, in the Cleveland Hotel, Cleveland, Ohio. At that time the following members of the Board were elected to serve with the president, vice president and executive vice president as members of the executive committee for the coming year:

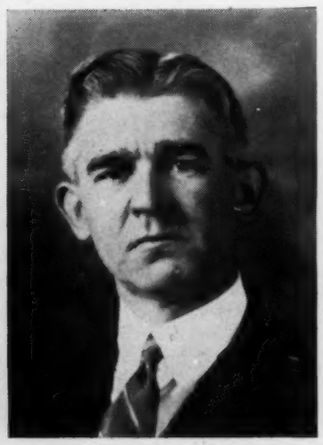
B. D. Claffey, General Malleable Corp., Waukesha, Wis.
H. S. Simpson, National Engineering Co., Chicago, Ill.
H. S. Washburn, Plainville Casting Co., Plainville, Conn.
S. V. Wood, Minneapolis Electric Steel Castings Co., Minneapolis, Minn.

Staff Members

At this meeting of the Board, the following were elected to their respective positions on the staff of the Association:

Executive Vice President and Treasurer—C. E. Westover
Convention and Exhibits Manager—C. E. Hoyt
Secretary—R. E. Kennedy
Assistant Treasurer—J. Reininga
Assistant Secretary—N. F. Hindle

H. S. Simpson



J. E. Crown

S. V. Wood

I. R. Wagner

In-Plant Training of Workers for War Production†

By William F. Patterson,* Washington, D. C.

IN view of the tremendous importance of the foundry industry to our war production, I am indeed grateful to have had this opportunity to discuss before the American Foundrymen's Association the subject of in-plant training. There is right now no subject more timely or vital.

You have come to this convention to learn not how much the foundry industry is already contributing to the war effort, but how much more it can contribute. In the course of personal visits to dozens of war plants in every section of the country, I have been happily surprised during the past few months by the unexpected showing we are making not only in production but also in regard to on-the-job training. Our industries are today producing much more than was thought possible 6 months ago. And yet we must devise ways to produce still more.

All-Out Training Program Essential

This is an all-out war and an all-out war can be won only by all-out production, and all-out production calls for all-out in-plant training arrangements.

Our industrial production machinery is confronted with the task of producing within the next 12 months, armament and war supplies in quantities which stagger the imagination. As a result, each one of us must be impelled by one ideal only: "What more can I do, on top of what I am already doing, to speed up our production?"

Because the products of foundries are indispensable to the operations of metal trades which must carry the main burden of war production, the labor supply and training situation of your

W. F. Patterson

industry are being watched with anxious eyes by all of us. Foundries must be operated during this emergency at maximum capacity, 24 hours a day. Without an ever growing flood of castings, our whole war production program is in jeopardy. I have been told that already 90% of all foundries have been converted to war production.

Here, then, is the major contribution to the war effort that your industry must make: It must develop a labor force that can meet our war production needs. This can be done only through comprehensive training programs, and your Association must take the lead in this. No adequate solution can be reached if we continue to deal with the problem on an individual plant or local basis.

Too Little and Too Late

Time is short and each day production dead lines grow more pressing. "Too little and too late" is already a reproach we will have difficulty living down.

The quicker this country realizes that production depends on trained workers, and that the first step in speeding up production is to set up sound and adequate methods for training vital workers, the quicker will we be able to outproduce the Axis.

If we are to outproduce the Axis nations and thereby assure their defeat, we must surpass them in training key war workers. Several years before the war Germany had nearly 800,000 apprentices in training. At that time this country had less than 100,000 apprentices. However, we are setting up machinery which is increasing our apprentices at the rate of approximately 10,000 a month. If the present rate continues, within a few years the number of skilled craftsmen in the United States will exceed that of any other nation in the world.

To utilize workers while they are being trained, we must arrange to train them in the plants in the midst of production.

Any training program in which you take the lead must be based on a realization of labor needs resulting from expansion in your industry and from the loss of workers to the armed forces.

Should Analyze Skilled Labor Problem

In my opinion, the foundry industry provides a model for all others in its well established and thoroughly practical training program. But foundry production is climbing a steady upward curve and foundry facilities are being expanded at a rapid rate. To insure a constant and increasing supply of trained manpower in all vital occupational categories, it is necessary that you analyze your training needs on the broadest possible basis. At its present rate of expansion and absorption, it will not be long before the supply of workers with skill useful to foundry work will be totally depleted.

Other factors complicate your training programs. Patriotic young men, unwilling to wait to be called for the draft are anxious to serve in specific branches

*Chief of Apprenticeship, U. S. Department of Labor.

†Presented at a session on Training Methods for War Production at the 46th Annual A.F.A. Convention, Cleveland, Ohio, April 23, 1942.

Erwin Sowinski, Chain Belt Co., working on pattern submitted in the 1942 apprentice patternmaking contest.

of the armed forces, are leaving critical war jobs to volunteer. It is your duty to make it clear to these young patriots that they can, for the time being, best serve their country at their present jobs until they can be replaced. This also applies to apprentices who have already completed one or more years of their apprenticeship in skilled trades in which shortages are imminent.

Draft Board Deferments Tightened

Selective Service is making heavy inroads on personnel of all industries. Last year, when we were calling men under arms merely for the purpose of training them as soldiers, it was possible for the Selective Service to be liberal in granting deferment under the term "necessary worker." Today, as you well know, this is no longer possible.

Then production was paramount. Now we are at war and ultimately every able-bodied man must be made available for combat duty. Only those employees in occupations strictly defined as necessary to war production can receive consideration for deferment, and even then the deferment must be of temporary nature—covering only the time it will take to train another worker to take the drafted worker's place.

Selective Service may deal your plant a knock-out blow, unless you take immediate steps to expand your training program to assure replacement of all workers who may be drafted. The employer who has in operation a replacement training program based on a thorough analysis of the probable effect of the Selective Service on the personnel of his plant will have valuable and effective evidence to submit to local draft boards in requesting temporary deferments.

When Draft Deferment Advisable

In the matter of deferment of necessary workers, there are two widely diverging schools of thought among employers. Some are reluctant to ask for deferment of any workers, considering such a request as unpatriotic. This is a well-intentioned but mistaken attitude. If the loss of the worker at the present time threatens to slow production of war essentials, then the patriotic thing to do is to ask his deferment and at the same time make arrangements so that a worker of the same level of skill will be ready to take his place at the earliest possible time. Then there is the employer who is operating under the delusion that anyone working in a war production plant is a "necessary man." There is a common sense middle ground between these two extremes.

Perhaps one way to cushion the effect of Selective Service as far as the training of skilled craftsmen is concerned is to hire apprentices at the earliest age possible, so that they will be able to serve two or more years of their time before being subject to the draft. Persons familiar with apprenticeship know that after the first year an apprentice has acquired skills which make him a very vital contributor to production.

In any case the number of men temporarily deferred will be a drop in the bucket compared to the total number needed to fill your production demands. This realization must underlie your training plans.

The core of any comprehensive training program is an apprenticeship program. The foundry industry has always been a leading exponent of sound apprentice training. One of the oldest of recognized industries, foundry work places a high premium on sound training and on craftsmanship. The percentage of all-round skilled workers in foundries is, perhaps, higher than in any other major industry. Through the years, foundry operators have developed a thorough and efficient method of introducing apprentices to high quality journeymanship.

Outstanding among the apprenticeship innovations your association has introduced has been the annual contest for apprentice patternmakers and apprentice molders. These contests have done much to dignify the institution of apprenticeship. Other national organizations concerned with stimulating interest in sound training are following your lead.

The apprenticeship committee which your organization created years ago has, through its experiences and studies, rendered invaluable services to all forms of in-plant training. Composed of men who themselves have served an apprenticeship and later introduced apprentices the secrets of the trade, the committee has been a convenient and inexhaustible source of tested apprenticeship information. It is no secret that the Federal Committee on Apprenticeship and the apprenticeship staff made extensive use of the A.F.A. committee's methods and standards.

Praises A.F.A. Apprentice Work

The pamphlet issued jointly by your Association and the National Founders' Association in 1935, entitled "Standards of Four-Year Foundry Apprenticeship," has been an important factor in analyzing apprenticeship problems and in evolving programs meeting a wide variety of situations and conditions. Perhaps nowhere is apprenticeship more clearly defined than in the opening sentence of these standards. That sentence points out that: "Apprenticeship is a systematic training in the all-round practices of a trade."

The training of apprentices remains essential in wartime.

Highly skilled jobs can be done only by men trained through apprenticeship. Foremen, superintendents and supervisors must have all-round experience. Furthermore, the apprentice is a production worker from the moment he begins working. From week to week and month to month he grows steadily in adaptability, in maturity, in range of skill, and in value of production.

A clear indication of apprenticeship's wartime significance, its flexibility to meet emergency needs, is the fact that Hawaii, isolated from any labor pool, is currently pressing forward with this form of training. The Territory, a little more than two months before the bombing of Pearl Harbor, enacted an apprenticeship law. Already several programs have been set up under the law. The apprenticeship staff gave short-term training assistance to the Army at Hickman Field prior to December 7, too. Negotiations are now under way to establish additional apprenticeship and short-term plans.

Much of the work in war plants, however, is mass production work. This type of work requires training in a narrow field of processes. To use a journeyman who has been trained in an entire trade on such work would be a waste of manpower. Such work can be done by specialists who can be trained in the shops under short-term training arrangements. On many jobs, the training can be arranged so that the specialist can take his place in the production line almost from the moment he is hired, acquiring, under close supervision, increased proficiency as he produces.

Short-Term Training

Plants with existing apprenticeship programs find setting up a plan for short-term training much easier than those without such programs. The principles of apprentice training are applicable to practically all forms of in-plant training, and training experts who have had experience in setting up or supervising an apprentice program are capable of planning and establishing machinery to train workers in key parts of a trade. In formulating an apprentice program, every process making up the trade must be considered and provided for in the work schedule. In setting up a specialist program, arrangements are made to break in the worker as quickly as possible on one operation or machine, and only on those operations or machines of immediate importance to the plant's production.

Under an upgrading program, the specialist is given an opportunity to learn the next job above the one he is working at, against the day when he can be transferred to an opening at the higher level.

In short, to meet the gigantic production demands imposed by an all-out war upon our industries, it is necessary that we take steps to have the less skilled jobs done by people of less skill. To do this properly, plants must analyze their training problems frankly and set up training arrangements which will fill their particular personnel needs, not only in the immediate future, but for the duration.

Careful Selection

By careful selection and by properly analyzing and weighing the qualifications of each applicant, the period of training workers on short-term programs can be materially shortened. The Thompson Products Company of Cleveland, right after war was declared, succeeded in cutting a 14-week learners' program down to eight weeks. It does not matter what you call your short-term training programs or the workers being trained under them. Learners, trainees, production workers, advancing workers, specialists, or whatever name you give them, they are all being trained for the one basic purpose—to speed up war production. To achieve this purpose, every effort should be made to telescope their training into the shortest possible time.

A combination of apprenticeship and short-term training, then, can fill your labor needs in the face of industrial expansion and loss of workers to the armed forces. What is the systematic way to set up a comprehensive training program to keep your working forces at a constant efficiency level?

Perhaps the first step is to estimate the total number of new workers that will be needed. Conduct a survey of draftable personnel. Discover how many men are likely to be called and in what departments.

Women Qualified for Many Jobs

In considering new workers, plans must be made for greater utilization of women. It is impossible to secure men in sufficient number to fill the thousands of jobs for which new workers must be trained.

There are, I know, certain jobs in foundries which women can do. I recall that even during the depression, women were used as coremakers in some shops for certain special jobs. Women have special qualifications which make them preferable to men in some fields of work.

Also not to be overlooked as candidates for in-plant training programs are persons slightly handicapped physically. And, of course, as the President stated in an Executive order, no population groups should be overlooked or discriminated against, since as Americans they are all ready to do their part in the war effort.

A foundry apprentice putting the finishing touches on his mold.

Not the least important in steps toward setting up a comprehensive training program is securing information on existing training facilities and programs which may be of help to you.

Government Apprentice Training

Government training agencies have been rendering valuable and timely assistance to plants and shops. Recently the Apprentice Section co-operated in setting up a short-term training program for a foundry which inducted 1,000 green workers into its production force within a few weeks. This program included a preliminary period in vocational classes outside the plant to serve as a "screening out" process. The applicants who qualified were placed in a special group in the plant to learn procedures and practices peculiar to the foundry. From this group they were then moved to the floor, where for six weeks they were employed on a probationary basis. The trainees, after preliminary tests on their qualifications and interests, were assigned to six groups—those who exhibited aptitude for molding work were placed in the group destined for the molding department, while others were set aside to try out for specialist jobs in the coremaking department, the cleaning and chipping department, the inspection department, or for work on permanent molds or on plant maintenance.

Members of the apprenticeship staff have been able to service plants producing all types of castings—bronze, brass, aluminum and other non-ferrous metals, as well as iron and steel.

Of course, no Government training agency pretends to be able to do the training job for a plant. Their function is one of service and assistance. An employer faced with a training problem which threatens to stymie production can turn to a Government training agency and that agency will see that men experienced in handling the particular problem involved are assigned to the job. The physical work of establishing and carrying through the training program falls on the shoulders of the employers and workers.

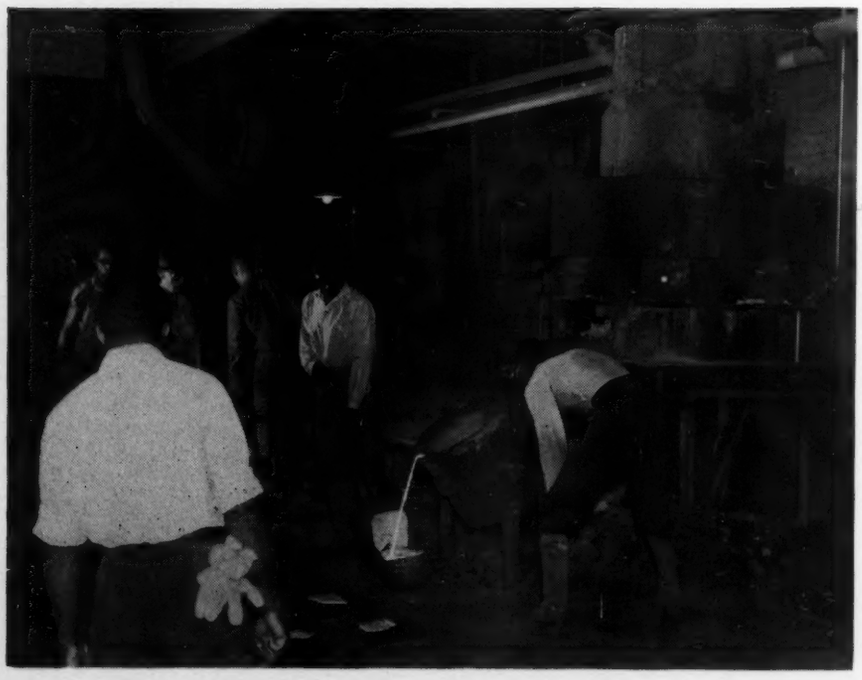
Organized labor groups throughout war industries have made substantial contributions to gearing in-plant training, especially apprenticeship, into the war production program. In your industry those companies with collective bargaining agreements have had full co-operation and assistance in establishing both types of programs from the International Molders and Foundry Workers Union of North America and the Steel Workers Organizing Committee.

In providing service in hundreds of labor relations training situations our experience has indicated that a joint committee is of invaluable assistance in determining policies on how the job training in a given plant or organization shall be carried out. The union, having participated in setting up the standards for the program, avails itself of every facility at its disposal to make the plan work. Joint committees in no way usurp the prerogative of management or the training director, but assist in advisory capacity to improve the quality of the training program.

Fifteen Molder Systems Today

Just how well equipped the foundry industry is for training skilled workers is indicated by the number of approved apprenticeship programs. Our records show that there are 15 city-wide molder systems in existence today. Outstanding are those in the Chicago, Minneapolis, and Philadelphia areas. The Chicago program covers 21 plants. Among them are National Bearings Metals Corporation, Nichol Straight Foundry, Eberhardt & Wagner Foundry, and Pettibone - Mulliken Corporation. Eleven companies so far are included under the Philadelphia program. Among the establishments are Acme Brass and Bronze Company, Butterworth Foundry Division, Schneider-Bowman Company, and Brinton Foundry Co., Inc.

In addition, 58 programs have been established to meet the requirements of individual foundries. Typical of establishments with plant apprentice-training arrangements registered with the Federal Committee are: Carondelet Foundry Company of St. Louis; Acme Bronze Foundry of Lowell, Massachusetts; Fort Pitt Steel Casting Company of McKeesport, Pennsylvania; West Michigan Steel Foundry Company of Muskegon, Michigan, and Taylor-Wharton Iron Steel Company of High Bridge, New Jersey.



Apprentices tapping a heat from a cupola.

However, Government training agencies have been urged by the War Production Board to do everything within their power to speed up all training aspects of our mammoth war production program. We, therefore, urge foundry operators who need skilled-worker training advice or assistance to call upon the nearest apprenticeship field office.

Let me remind you that inaugurating a training program is just the beginning. Any kind of working training program calls for constant servicing and attention, for strengthening weak spots and for alterations and changes to meet current requirements.

One of the functions of the Apprenticeship Section as a clearing house is to collect and circulate information on the latest training problems, techniques, and procedures, making these discoveries and experiences available to industrial plants and to organizations conducting training programs.

As I have already indicated, I am aware that the foundry industry has already done a great deal about training. I have had many opportunities during the past eight years to discuss the subject of apprenticeship and in-plant training with your apprenticeship committee and members of your organization, and I am therefore familiar with the progressive attitude held by your industry in regard to training of all kinds.

Consequently, I am sure you will be interested in knowing about a Government-sponsored program in the training field of international significance — the Inter-American Trade Scholarship program being sponsored by the Office of the Co-ordinator of Inter-American Affairs.

Through this program, 20 American republics are sending young men to the United States to acquire two years of on-the-job training experience in industry, agriculture, or business.

In addition to the long range aspects, this program solves a current need. Before the war European nations provided an industrial training ground for other American republics. The war has eliminated these opportunities and our neighbors are looking to this country for "breaking in" training.

Because the foundry industry holds such a vital position, it is important that your training plan should be made comprehensive and thoroughly effective. Your critical place in the industrial picture makes it imperative that the Nation at large be assured that you are taking every step to operate at maximum capacity 24 hours a day, 168 hours per week.

We must never forget that we all are in this war not only as individuals, but as members of the groups to which we belong. Your Association is an important organization in the war effort. Each one of us and your Association as a whole has a vital contribution to make toward hastening ultimate victory. We must remember that each plant is a link in the production chain, and that this chain like all chains is only as strong as its weakest link. Thank you.

NEW • Code of Recommended Practices for

Protection of Life, Property and Production

in the Foundry Industry

Maximum Production of castings for war purposes demands Maximum Protection of both plant and processes. This new code, now available to the industry, was prepared by the A.F.A. Industrial Hygiene Codes Committee, under chairmanship of Jas. R. Allan, and has been reviewed and passed by the Office for Civilian Defense. It contains detailed suggestions expressly prepared for the foundry industry from the standpoint of effectiveness, minimum cost of installation, and minimum time required for putting into practice. Every foundry engaged in war work should take steps now in preparation for wartime emergency.

Some of the Important Points Covered

Organizing the Plant for Emergencies.
Investigation and Identification of Employees and Visitors.
Plant Defense Co-ordination—Fire, Police, Medical and Maintenance Groups.
Protective Apparel Recommended.
Protection of Buildings and Properties—Fencing, Entries, Lighting, Utilities, Vital Installations.
Protection for Blackouts and Bomb Raids—Buildings, Operations, Utilities, Smoke Screens.
Camouflage Use and Methods.

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Please send me ..... copies of the new "Code of Recommended Practices for Protection of Life, Property and Production in the Foundry Industry During War."

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I enclose $..... in ☐ Check ☐ Money Order ☐ Cash to cover.

Western Michigan Chapter Is Winner of the National Membership Contest

HATS off to Western Michigan! This chapter won the National Membership Contest, which closed April 15, with a total of 500 points. As is shown in the accompanying table, Western Michigan chapter secured slightly more than 50 per cent of its membership quota as set up by the National Membership Committee at the beginning of the contest. The National Membership Committee is composed of B. D. Claffey, General Malleable Corp., Waukesha, Wis., as chairman, and E. W. Horlebein, Gibson & Kirk Co., Baltimore, Md., as vice chairman. Members of the National Membership Committee were chapter chairmen, chapter membership committee chairmen and representatives of non-chapter areas.

William Brooks and John Wiltzins, Allis-Chalmers Mfg. Co., champion go-getters in the Wisconsin chapter's membership contest.
(Photo courtesy John Bing, A. P. Green Fire Brick Co.)

When Chairman Claffey began organizing the contest, the slogan "5000 in '42" was adopted. At the close of the contest, the committee was 152 members short of its goal. Since then a considerable number of new members have been obtained and it is easily possible to secure this number of members before the end of the fiscal year, June 30, 1942.

Breaks Record

The National Membership Committee should be congratulated on the exceptionally fine job it has done during the past year. The results show that not only members of the National and Chapter Membership Committees, but also individual members have made this year the outstanding membership year thus far experienced by the Association. Through the efforts of members at large and chapter membership committees specifically, 981 new members have been added to the rolls of the Association, and the total membership as of April 18 is 4846. During the year, losses due to death, resignations and delinquency totaled 303, so that during the year there was a net gain of 678 members as of April 18.

This increase in membership and also the total number of new members obtained within the year constitute a record in the membership activities of A.F.A. Congratulations to the National and Chapter Membership Committees for the excellent job which they have done. They have set an example for their successors which will be difficult to better.

Contest Winners

When the Chapter Membership Contest was in its formative stages, the National Membership Committee worked out a quota system by which it was hoped to give those chapters whose opportunities to secure members were somewhat limited by the fact that their areas contained fewer foundries than the larger chapter areas a chance against their larger competitors. The success of this quota system is evident by the winners of the contest. Western Michigan, first-place winner, obtained slightly over 50 per cent of its member quota; while Toledo, the second-place winner, obtained slightly under 50 per cent. The third-place winner, Northern Illinois-Southern Wisconsin Chapter, obtained exactly 50 per cent of its quota. The difference in total points is due to the variation in points awarded for the type of

Chapter Membership Progress Report

	Chapter	Membership as of 7/1/41	Chapter Quotas	Gain in Membership as of 4/15/42	Chapter Standing By Points
1	Western Michigan	50	68	35	500
2	Toledo	43	60	29	460
3	Nor. Illinois-Sou. Wisconsin	40	46	23	455
4	Wisconsin	310	210	107	365
5	Quad City	129	41	28	356
6	St. Louis District	135	90	29	280
7	Cincinnati District	141	141	39	258
8	Chicago	425	259	52	215
9	Central Indiana	127	111	29	215
10	Metropolitan	172	210	41	197
11	Twin City	66	84	20	195
12	Southern California	194	201	36	187
13	Ontario	98	199	31	182
14	Northern California	107	99	15	171
15	Detroit	231	196	34	158
16	Michiana	67	101	22	157
17	Northeastern Ohio	328	243	35	132
18	Chesapeake	154	159	21	106
19	Western New York	151	111	10	81
20	Central New York	109	90	5	67
21	Philadelphia	185	237	11	66
22	Birmingham District	242	125	—14	—17
		3504		638	

While a chapter may show no increase in membership, it is possible to show a gain in the Chapter Standing by Points Column by converting a Personal to a Company membership or a Company to a Sustaining membership, since each class of membership carries a different credit in points.
The above figures do not include membership in non-chapter areas.

The chapter officers' dinner, where the membership bells were presented to the winning chapter representatives.

membership obtained. From the accompanying table, it will be seen that there is little difference between the three winners.

If the total number of members obtained is considered, our hats should be off to the Wisconsin Chapter. This chapter's membership committee, under the able direction of W. A. Hambley, Allis-Chalmers Mfg. Co., Milwaukee, obtained 107 new members—a record, we believe, for any one chapter in one year. Last year, when he also turned in for his chapter the largest total number of new members to win the National Membership Contest, Mr. Hambley stated that this year he would secure even more members. He has made good his word. Our sincere congratulations to Bill not only for his excellent record as chapter membership chairman but for his willingness to explain to other membership chairmen how he does it.

Awards Made

At the Annual Chapter Officers' dinner held on Wednesday evening of convention week at Hotel Statler, a large bronze bell, suitably engraved, was presented to D. F. Seyferth, West Michigan Steel Foundry Co., Muskegon, as chairman of the Western Michigan Chapter. Charles F. Carson, National Supply Co., Toledo, director, accepted the second-place bell on behalf of the Toledo Chapter, and Chairman George K. Minert, Gunite Foundries Corp., Rockford, accepted the third-place bell on behalf of the Northern Illinois-Southern Wisconsin Chapter.

As a special award for the record which he has made as membership chairman of the Wisconsin Chapter, Bill Hambley was given a desk pen set, suitably engraved, acknowledging his accomplishment.

While all those who have taken part in the membership drive this year can point with pride to the accomplishments as of today, we are only slightly short of the "5,000 in '42" as set by the National Membership Committee as a goal. One more push and we will be over. Let us make the final effort so that we can point with pride to having set a goal and accomplishing it.

New Members

(March 15 to April 18, 1942)

Feast your eyes on the four pages of new members, you Membership Chairmen and Committeemen, for here are the results of many months of diligent work and great efforts on your part. Every chapter contributed to this month's final tally card and that is a record that the Association is proud to announce along with the fact that below is the largest list of new members the Association has ever reported in one month, 271 to be exact. Also notice that a new chapter, Eastern Canada and Newfoundland, our twenty-third, has been organized and brings 23 new members.

Conversions

Company from Personal

Independent Foundry Supply Co., Los Angeles, Calif. (Steven Mocsny, Prop.)
McShane Bell Foundry Co., Baltimore, Md. (D. R. McAleer)

Birmingham Chapter

W. F. McKee, Supt., Steel Foundry, Stockham Pipe Fittings Co., Birmingham, Ala.

Central Indiana Chapter

Lawrence W. Bollman, Electric Steel Castings Co., Indianapolis, Ind.
Cecil C. Chamberlin, Pres., Marion Machine, Foundry & Supply Co., Marion, Ind.
Glen J. Crist, Electric Steel Castings Co., Indianapolis.
Paul V. Faulk, Electric Steel Castings Co., Indianapolis, Ind.
Benton M. Harlan, Electric Steel Castings Co., Indianapolis, Ind.
G. Abner Mears, Electric Steel Castings Co., Indianapolis, Ind.
Herbert F. Mears, Electric Steel Castings Co., Indianapolis, Ind.
Charles Neese, Jr., Electric Steel Castings Co., Indianapolis, Ind.
Charles W. Nelson, Electric Steel Castings Co., Indianapolis, Ind.
Charles W. Thompson, Electric Steel Castings Co., Indianapolis, Ind.
Clarence E. Wiggam, Electric Steel Castings Co., Indianapolis, Ind.
George A. Ziegelmueller, Electric Steel Castings Co., Indianapolis, Ind.

Central New York Chapter

Joseph O. Jeffrey, Sibley College, Cornell University, Ithaca, N. Y.
Owen Lewis, Foreman, Core Dept., Crouse-Hinds Co., Syracuse, N. Y.
Thomas Morgan, Patt. Maker, Utica Steam Engine & Boiler Works, Utica, N. Y.
John Robert Moynihan, Sibley College, Cornell University, Ithaca, N. Y.
Chas. R. Risney, Owner-Mgr., Rome Foundry Co., Rome, N. Y.

**Sustaining Member.
*Company Member.

Chesapeake Chapter

*Dixie Manufacturing Co., Inc., Baltimore, Md. (James W. Toohey, Pres.)
Howard F. Poper, Asst. Fdry. Supt., Frick Company, Inc., Waynesboro, Pa.
J. B. Roman, Patt. Supv., Chesapeake & Ohio Railway Co., Richmond, Va.
Lt. C. E. Vorobik, Met. Officer, Naval Gun Factory, Washington, D. C.
*Wood Embly Brass Co., Waynesboro, Pa. (J. B. Mentzer, Secretary-Treasurer)

Chicago Chapter

*Acme Aluminum Foundry Co., Chicago, Ill. (L. G. Jessup, Supt.)
*Anbar, Incorporated, Chicago, Ill. (H. T. Bellamy, Pres.)
N. Paul Benson, Fdry. Foreman, Chicago Malleable Castings Co., Chicago, Ill.
**Brumund & Hufker Foundry, Chicago, Ill. (E. G. Brumund, Partner)
Frank D. Campbell, Consulting Engineer, Chicago, Ill.
*Christensen & Olsen Foundry Co., Chicago, Ill. (Chester K. Faunt, Ass't Sec'y)
Frank Czapski, Met., Chicago Malleable Castings Co., Chicago, Ill.
Oliver P. Fahrenbach, Asst. to Wks. Mgr., Chicago Malleable Castings Co., Chicago, Ill.
Chas. Hoag, Supt., Challenge Co., Batavia, Ill.
Ben J. Kossak, Draftsman, National Engineering Co., Chicago, Ill.
*Pettibone Mulliken Corp., Chicago, Ill. (E. M. Toussaint, Plant Mgr.)
Lew Foster Porter, Chief Chemist, American Steel Foundries, E. Chicago, Ind.
James Stewart, Jr., Draftsman, National Engineering Co., Chicago, Ill.
Frank H. Trimble, Research Physicist, Armour Research Foundation, Chicago, Ill.
Honore P. Tuman, Service Engr., Sivyer Steel Castings Co., Chicago, Ill.

Cincinnati District Chapter

William H. Bartels, Teacher, Mechanical High School, Cincinnati, Ohio
William Beiser, President, Reliance Foundry Co., Cincinnati, Ohio
Allen C. Coffin, Sand Tech., Wright Aeronautical Corp., Cincinnati, Ohio
John A. Greene, Foundry Engr., Wright Aeronautical Corp., Lockland, Ohio
Leland Hall, Wright Aeronautical Corp., Lockland, Ohio
Everett Hester, Fdry. Supt., C. S. Bell Co., Hillsboro, Ohio
C. E. Milligan, Repr., Electro Refractories & Alloys Corp., Cincinnati, Ohio
James A. Murphy, Treas., Jas. A. Murphy & Co., Hamilton, Ohio
L. R. Pape, Dayton, Ohio

Detroit Chapter

Alex Avram, Gen. Foreman—Coreroom, Wilson Fdry. & Machine Co., Pontiac, Mich.
Harry Blyler, Fdry. Foreman, Detroit Steel Casting Co., Detroit, Mich.
J. P. Carritte, Jr., Pres., True Alloys, Inc., Detroit.
Roy Carter, Foreman, Wilson Foundry & Machine Co., Pontiac, Mich.
Clore Chambers, Plant Engr., Wilson Foundry & Machine Co., Pontiac, Mich.
*Detroit Hardware Mfg. Co., Detroit, Mich. (Raymond Sassen, Fdry. Foreman)
Lennie Erickson, Foreman, Wilson Foundry & Machine Co., Pontiac, Mich.
Wm. L. Howland, Chief Inspector, Detroit Steel Casting Co., Detroit, Mich.
Don E. Jones, Dist. Mgr., Detroit, Mich., Lacledе-Christy Clay Products Co., St. Louis, Mo.
Edward S. Kelly, Fdry. Chemist, Budd Wheel Co., Detroit, Mich.
*Lawrence Clay Company, Jackson, Ohio (H. H. Stephenson, Pres.)
Thomas H. Libbey, Fdry. Mgr., Wilson Foundry & Machine Co., Pontiac, Mich.
Erik O. Lissell, Instructor, University of Michigan, Ann Arbor, Mich.
John Robert McCoskey, Asst. Foreman, Detroit Steel Casting Co., Detroit, Mich.
John McFall, Foreman, Wilson Foundry & Machine Co., Pontiac, Mich.
Edwin Monce, Progress & Planning, Detroit Steel Casting Co., Detroit, Mich.
*Mueller Brass Company, Port Huron, Mich. (E. R. McLane, Dept. Supt.)
Charles Oxley, Foreman, Wilson Foundry & Machine Co., Pontiac, Mich.
William J. Rogers, Foundry Met., Packard Motor Co., Detroit, Mich.
Max Rutzen, Fdry. Supt., Wilson Foundry & Machine Co., Pontiac, Mich.
Clifford U. Sellers, Melter, Detroit Steel Casting Co., Detroit, Mich.
Howard Shaw, Met., Wilson Foundry & Machine Co., Pontiac, Mich.
Lon C. Ware, Detroit, Mich., Sales Repr., Lacledе-Christy Clay Products Co., St. Louis, Mo.
*Wilson Foundry & Machine Co., Pontiac, Mich. (Wallace O. Leonard, Exec. Vice Pres.)
Louis P. Wilson, Fdry. Met., Aluminum Co. of America, Detroit, Mich.

Eastern Canada & Newfoundland Chapter

*Aluminum Co. of Canada, Ltd., Arvida, P. Q., Canada
L. P. Chartrand, Radiographer, Robert Mitchell Co., Ltd., St. Laurent, Que.
Marc Chicoine, Asst. Met., Robert Mitchell Co., Ltd., St. Laurent, Que.
Jean Claes, Core Maker Foreman, Robert Mitchell Co., Ltd., St. Laurent, Que.
Lawrence L. Cohen, Gen. Mgr., W. R. Cuthbert & Co., Montreal, Que.
*Desjardins, Ltee., St. Andre de Kamouraska, Que.
Armand Fortier, Core Maker Foreman, Robert Mitchell Co., Ltd., St. Laurent, Que.
Roland Galarneau, Melting Room Foreman, Robert Mitchell Co., Ltd., St. Laurent, Que.
Roland Gauthier, Asst. Chemist, Robert Mitchell Co., Ltd., St. Laurent, Que.
*La Cie. J. A. Gosselin, Drummondville, P. Q., Canada
Leslie Harris, Draftsman, Robert Mitchell Co., Ltd., St. Laurent, Que.
Wm. Havercroft, Radiographer, Robert Mitchell Co., Ltd., St. Laurent, Que.
Lucien Larose, Melting Inspector, Robert Mitchell Co., St. Laurent, Que.
Michael Liederman, Foreman, Fitting Dept., Robert Mitchell Co., Ltd., St. Laurent, Que.
J. R. Marion, Fitting Room Foreman, Robert Mitchell Co., Ltd., St. Laurent, Que.
R. Primeau, Foreman, Robert Mitchell Co., Ltd., St. Laurent, Que.
Roger Riopel, Shipper, Robert Mitchell Co., Ltd., St. Laurent, Que.
Henry U. Ross, Fdry. Supt., Union Screen Plate Co. of Canada, Ltd., Lennoxville, Que.
Emilien Senecal, Jr., Mag. Rm. Foreman, Robert Mitchell Co., Ltd., St. Laurent, Que.
Wm. Geo. Sharkey, Chief Inspector, Robert Mitchell Co., Ltd., St. Laurent, Que.
Geo. Trites, Molder, Robert Mitchell Co., Ltd., St. Laurent, Que.
J. E. Vessot, La Cie. J. A. Gosselin, Ltee., Drummondville, P. Q.
O. Lawrence Voisard, General Foreman, Robert Mitchell Co., Ltd., Montreal, Que.

Metropolitan Chapter

*American Marine Brass Foundry, Inc., Brooklyn, N. Y. (George Staub, Pres.)
Nicholas Cuccinelli, Coremaker, Wright Aeronautical Corp., Paterson, N. J.
Joseph C. Dorn, Coremaker, Wright Aeronautical Corp., Paterson, N. J.
Tunis P. Duvalois, Molder, Wright Aeronautical Corp., Paterson, N. J.
Robert B. Fischer, Met., Ingersoll-Rand Co., Phillipsburg, N. J.
Frank S. Gardner, Asst. Met., American Brake Shoe & Foundry Co., Mahwah, N. J.
Theodore R. Jurissen, Coremaker, Wright Aeronautical Corp., Paterson, N. J.

*Leslie Company, Lyndhurst, N. J. (E. M. Hopper, Engr.)
Martin Pepper, Tech. Asst. to Fdry. Supt., Wright Aeronautical Corp., Paterson, N. J.
Alex Siksnius, Foundry, Wright Aeronautical Corp., Paterson, N. J.

Michiana Chapter

Joseph F. Banach, Foreman, Oliver Farm Equipment Co., South Bend, Ind.
Robert Dunlop, Salesman, A. P. Green Fire Brick Co., Chicago, Ill.
Francis A. Honer, Sec'y-Treas., Woodward Pattern Works, Inc., South Bend, Ind.
George Hyland, Aircraft Core Assembler, Bendix Products Division, South Bend, Ind.
Alex J. Juroff, Fdry. Met., Bendix Products Division, South Bend, Ind.
Jos. Masiak, Coreroom Setup Man, Bendix Products Division, South Bend, Ind.
Bernard Nawrocki, Aircraft Core Assembler, Bendix Products Division, South Bend, Ind.
L. K. Newell, Salesman, Elkhart, Ind., Reliable Pattern & Casting Co., Cincinnati, Ohio
John L. Noyer, Sr., Asst. Foreman, Bendix Products Division, South Bend, Ind.

Northeastern Ohio Chapter

Harry Allchin, Vice Pres., Wellman Bronze & Aluminum Co., Cleveland, Ohio
Frank J. Balsley, Frederic B. Stevens Co., Cleveland.
*Bucyrus Castings Co., Bucyrus, Ohio (Arthur Schuler)
*Chandler & Price Co., Cleveland, Ohio (D. W. Frackelton, Pres.)
George F. Fawcett, Supt. of Foundry, Parker Appliance Co., Cleveland, Ohio
*Gluntz Brass & Aluminum Foundry Co., Cleveland, Ohio (D. J. Gluntz, Pres.)
E. H. Johnson, Pres., Johnson Fire Brick Co., Cleveland, Ohio
Frank W. Klatt, Gen. Mgr., W. W. Sly Mfg. Co., Cleveland, Ohio
Gus Nauman, Supt., Wellman Bronze & Aluminum Co., Cleveland, Ohio
Gilbert J. Nock, Asst. Sec'y-Treas., Nock Fire Brick Co., Cleveland, Ohio
*Standard Brass Foundry Co., Cleveland, Ohio (Frank Mental, Fdry. Supt.)

Northern California Chapter

Henry Levin, Trustee-Mgr., R. Levin Co., San Francisco, Calif.
Burton Markovits, Pres., A. Bercovich Co., Oakland.
John Pasquini, Eureka, Calif.
Maurice M. Rubens, Plant Supt., Spokane Stove & Furnace Repair Works, Inc., (Wash.)
C. M. Sayre, Vice Pres., Enterprise Engine & Foundry Corp., San Francisco, Calif.
Philip Scheibner, Owner, Associated Iron & Metal Co., Oakland, Calif.
Marshall A. Shapiro, Pres., California Scrap Iron Corp., Oakland, Calif.
W. B. Straub, Pres., Empire Foundry Co., Oakland.

No. Illinois-So. Wisconsin Chapter

Oscar Anderson, G. I. Molding Foreman, Fairbanks, Morse & Co., Beloit, Wis.
John T. Fredendall, Prod. Dept., Fairbanks, Morse & Co., Beloit, Wis.
Arthur E. Graves, Cupola Foreman, Fairbanks, Morse & Co., Beloit, Wis.
John A. Henke, Foreman, Fairbanks, Morse & Co., Beloit, Wis.
David C. McGlauchlin, Welder, Fairbanks, Morse & Co., Beloit, Wis.
Rolland P. Pratt, Core Room Foreman, Fairbanks, Morse & Co., Beloit, Wis.
Charles L. Rathbun, Time Study, Fairbanks, Morse & Co., Beloit, Wis.
Roy E. Schofield, Core Room Foreman, Fairbanks, Morse & Co., Beloit, Wis.
John Schoville, Beloit Foundry Co., Beloit, Wis.
Marvin Skougstad, Chemist, Fairbanks, Morse & Co., Beloit, Wis.
Gerald Williams, Beloit Foundry Co., Beloit, Wis.
Ernest Yaeger, G. I. Molding Foreman, Fairbanks, Morse & Co., Beloit, Wis.

Ontario Chapter

F. S. Ferguson, Pres., Standard Foundry & Supply Co., Lt., Windsor, Ont., Canada
*Fisher & Son, Hamilton, Ont. (James Fisher)
*W. Sherratt & Son, Toronto, Ont. (Jos. Sherratt, Partner)

Philadelphia Chapter

James Blauch, Planning Engr., Lebanon Steel Foundry, Lebanon, Pa.
*Bonair Foundry Co., Philadelphia, Pa. (C. D. Hamburg, Superintendent)
*A. C. Layman Machine Co., Wilmington, Dela. (A. C. Layman, Pres.)
Boniface A. Miller, Cramp Brass & Iron Fdries. Div., Baldwin Locomotive Works
Alfred R. O'Donnell, Planning Engr., Lebanon Steel Foundry, Lebanon, Pa.
Henry A. Smith, Sales, Fletcher Works, Philadelphia.
W. W. Thawley, Salesman, Empire Steel Co., Reading (Temple), Pa.

Quad City Chapter

M. A. Ashmore, Shop Inspector, Rock Island Arsenal, Rock Island, Ill.
F. K. Butterfield, Met., Caterpillar Tractor Co., Peoria, Illinois
Harold Carlson, Foreman, Frank Foundries Corp., Moline, Ill.
Thos. F. Connolly, Foreman-Wood Patt. Makers, Caterpillar Tractor Co., Peoria, Ill.
B. V. Crabtree, Engr., J. I. Case Co., Rock Island, Ill.
William A. Donlan, Molding Supv., Caterpillar Tractor Co., Peoria, Ill.
Earl W .Engstrom, Met., International Harvester Co., Rock Island, Ill.
Steven G. Garry, Supv., Caterpillar Tractor Co., Peoria.
Gottlieb Grant, Foreman, Caterpillar Tractor Co., Peoria, Ill.
Luther G. Gunn, Foreman, Caterpillar Tractor Co., Peoria, Ill.
Robert E. Hodgson, Core Room Supt., Caterpillar Tractor Co., Peoria, Ill.
Robert J. Hoerr, Appr., Wood Patt. Maker, Caterpillar Tractor Co., Peoria, Ill.
J. Milton Johnson, Office Mgr., Frank Foundries Corp., Moline, Ill.
M. D. Johnson, Chief Inspector, Caterpillar Tractor Co., Peoria, Ill.
John C. Koteles, Supv., Caterpillar Tractor Co., Peoria, Illinois
Kenneth A. Kyrk, Appr., Wood Patternmaking, J. I. Case Co., Rock Island, Ill.
Chester R. Larson, Purch. Agent, Frank Foundries Corp., Moline, Ill.
John Madacey, Supv., Caterpillar Tractor Co., Peoria.
Zigmond Madacey, Gen. Foreman, Core Room, Caterpillar Tractor Co., Peoria, Ill.
Russ. Manley, Salesman, Manley Sand Company, Rockton, Ill.
Jacob F. Meier, Appr., Wood Patt. Maker, Caterpillar Tractor Co., Peoria, Ill.
Elmer J. Moses, Fdry. Foreman, Rock Island Arsenal, Rock Island, Ill.
C. Raymond Nash, Supv., Core Room, Caterpillar Tractor Co., Peoria, Ill.
William Nelsen, Foreman, Frank Foundries Corp., Moline, Ill.
Sam Priebe, Foreman, Caterpillar Tractor Co., Peoria.
Edward J. Rice, Foreman, Core Room, Caterpillar Tractor Co., Peoria, Ill.
George H. Rockwell, Fdry. Planning Supt., Caterpillar Tractor Co., Peoria, Ill.
George W. Schuller, Jr., Patt. Shop, Caterpillar Tractor Co., Peoria, Ill.
A. R. Silver, Foreman, Metal Patt. Shop, Caterpillar Tractor Co., Peoria, Ill.
Max H. Spencer, International Harvester Co., Rock Island, Ill.
Jack W. Swatek, Moline, Ill., Salesman, A. P. Green Fire Brick Co., Mexico, Mo.
Wm. E. Tharp, Instructor—Patt. Shop, Caterpillar Tractor Co., Peoria, Ill.
Peter R. Trauffer, Asst. Fdry. Foreman, French & Hecht, Davenport, Iowa

Louie John Voros, Foreman, Caterpillar Tractor Co., Peoria, Ill.
Harrison Weaver, Jr., Fdry. Planning Engr., Caterpillar Tractor Co., Peoria, Ill.
Wm. H. Wezel, Asst. Met., Caterpillar Tractor Co., Peoria, Ill.
Richard W. Zimmerman, Appr., Metal Patt. Maker, Caterpillar Tractor Co., Peoria, Ill.

St. Louis District Chapter

Steve Ban, Fdry. Supt., National Bearing Metals Corp., St. Louis, Mo.
Chas. L. Clemans, Key Company, East St. Louis, Ill.
Joseph A. Cullen, Independent Oil Co., St. Louis, Mo.
J. P. Hill, Pres., Modern Brass Foundry, St. Louis, Mo.
Fred H. Hindman, Foreman, Key Company, East St. Louis, Ill.
Al Hunt, Supt., National Bearing Metals Corp., St. Louis, Mo.
C. A. Kenyon, Pres., Northwestern Brass Foundry Co., St. Louis, Mo.
Paul Kisselbach, Patt. Maker, Key Company, East St. Louis, Ill.
Ed. Kuecht, Foreman, Key Company, East St. Louis.
Dave Patterson, Sand Preparation Foreman, American Steel Foundries, East St. Louis, Ill.
Edward G. Smythe, Asst. Supt., Tower Grove Fdry. Div., St. Louis, Mo.
F. P. Walsh, Dist. Mgr., Whiting Corporation, St. Louis, Mo.

Southern California Chapter

***Aero Alloys Company, Vernon, Calif. (Walter J. Cunningham, Pres.)**
C. J. Bradley, Dayton Foundry, Inc., Hollydale, Calif.
Frank J. Britts, Foundry Instructor, Manual Arts High School, Los Angeles, Calif.
J. P. Burdell, Salesman, Schramm, Inc., Westchester.
Phillip Campbell, Owner, Phillip Campbell Pattern Works, Whittier, Calif.
James G. Clay, Sales Repr., Chamberlain Co., Los Angeles, Calif.
William H. DeVaney, Fdry. Supt., Pomona Pump Co., Pomona, Calif.
C. D. Fairbanks, Sales, Ingersoll-Rand Co., Los Angeles, Calif.
Arthur Robert Fontana, Molder, Kinney Iron Works, Los Angeles, Calif.
E. G. Gaskell, Treas. & Supt., Ace Foundry, Ltd., Los Angeles, Calif.
E. Earl Glass, Los Angeles, Calif.
Carl T. Hansen, Patt. Shop Foreman, Grayson Heat Control, Ltd., Lynwood, Calif.
***Hopping's Foundry, Pasadena, Calif. (Ray Hopping, Partner)**
***Precision Pattern Shop, Los Angeles, Calif. (M. E. Klinkert, Partner)**
A. W. Shaw, Sales, Independent Foundry Supply Co., Los Angeles, Calif.
***Zenith Supply Company, Los Angeles, Calif. (Thomas R. Harris, Owner and Mgr.)**

Toledo Chapter

W. C. Adler, Production Engr., Ohio Steel Foundry Co., Lima, Ohio
C. G. Downey, Sand Control, Ohio Steel Foundry Co., Lima, Ohio
***France Foundry & Machine Co., Toledo, Ohio (L. R. Culbertson, Sales)**
Frank Kiper, Asst. Met., Ohio Steel Foundry Co., Lima Ohio
R. H. Souder, Products Engr., Unitcast Corp., Toledo.
J. J. Sperry, Foundry Supt., Rathbun Jones Engineering Co., Toledo, Ohio
Edwin D. Swan, Melting Foreman, National Supply Co., Toledo, Ohio

Twin City Chapter

Harry Blumenthal, Minneapolis, Minn., Repr., R. Lavin & Sons, Chicago, Ill.
A. A. Gustafson, St. Paul, Minn., Repr., E. F. Houghton & Co., Philadelphia, Pa.
***Kienzle & Merrick Co., Shakopee, Minn. (C. D. Pruden, Pres. and Treas.)**
Ray G. Morris, Partner, Morris Brass & Aluminum Foundry, Minneapolis, Minn.

Western Michigan Chapter

Eric Anderson, Appr., West Michigan Steel Foundry, Muskegon, Mich.
Donald Bolt, Appr., West Michigan Steel Foundry, Muskegon, Mich.
Fred DeHudy, Asst. Met., West Michigan Steel Foundry, Muskegon, Mich.
James J. Hamm, Owner, Victory Pattern Shop, Muskegon, Mich.
Douglas Noble, Appr., West Michigan Steel Foundry, Muskegon, Mich.
***Standard Pattern & Model Works, Muskegon Heights, Mich. (Cliff Anderson, Owner)**
Hero Wieter, Works Mgr., West Michigan Steel Foundry, Muskegon, Mich.

Western New York Chapter

***Buffalo Co-Operative Stove Co., Buffalo, N. Y. (Chester H. Long, Gen'l Mgr.)**
***Medina Iron & Brass Co., Medina, N. Y. (Thos. Boyd, Vice President)**
Paul Ashley Pratt, Supt. of Melting, Symington Gould Corp., Rochester, N. Y.

Wisconsin Chapter

Arthur C. Abraham, Research Dept., Allis-Chalmers Mfg. Co., West Allis, Wis.
***Aelco Brass Foundry, Milwaukee, Wis. (W. H. Brown, Sr., Vice Pres.)**
Stanley P. Behmke, Gen'l Foreman, Nordberg Mfg. Co., Milwaukee, Wis.
Leland Biwersi, Molder, Allis-Chalmers Mfg. Co., West Allis, Wis.
Herbert Bodden, Repr., George M. Pendergast & Co., Milwaukee, Wis.
Louis Caviale, Milwaukee Wis., Lieberman & Gittlen & Co., Inc., Grand Rapids, Mich.
***Cohen Iron & Metal Co., Milwaukee, Wis. (Judd Post, Treasurer)**
Harold Haglund, Molder, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
William N. Leininger, Foundry Foreman, Milwaukee Flush Valve Co., Milwaukee, Wis.
Carl R. Loper, Sand Testing, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Alfred C. Ludtke, Foreman, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Walter Pardun, Foreman, Ampco Metal, Inc., Milwaukee, Wis.
Fred Rehbein, Foreman, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Alton G. Rickert, Dist. Mgr., Precision Grinding Wheel Co., Inc., Wauwatosa, Wis.
John A. Strommen, Foreman, Patt. Shop, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Seeley F. Trudelle, Inspector, Ampco Metal, Inc., Milwaukee, Wis.
Aug. C. Viarthaler, Vice Pres., Iroquois Foundry Co., Racine, Wis.

Outside of Chapter

***Berkley Machine Works & Foundry Co., Inc., Norfolk, Va. (Samuel Y. Jones, Pres.)**
Max W. Bowen, Mill Mgr., Golden Cycle Corp., Colorado Springs, Colo.
La Cantabrica, S. A. Metalurgica Industrial y Comercial, Buenos Aires, So. America
John Arthur Carey, Carey & Carey, Calle Paris No. 12, Mexico D. F., Mexico
Joseph Deliso, Treas., Hampden Brass Co., Springfield, Massachusetts
W. Fowler, Mgr., Fuze & Cartridge Case Factory No. 2, Finsbury, South Australia
***Garrott Brass & Machine Co., Inc., Houston, Texas (John C. Garrott, Pres.)**
Gelman Hermanos (Fundicion Zulia) Maracaibo, Venezuela, South America
Laminacao Nacional De Metais S/A, Sao Paulo, Brazil, South America
J. N. Lawrence, Fundicion de Fierro y Tallers Mecanicos, Aguascalientes, Mexico
Macfarlane Foundry & Honolulu Iron Works, S. A., Sagua la Grande, Cuba
John Oddy, Fdry. Supt., Austin Motor Company, Ltd., Longbridge Works, Birmingham, England
***Progressive Brass Mfg. Co., Tulsa, Okla. (E. J. Thomas, President)**

Keen Competition Features Annual A.F.A. Apprentice Contests

NOW that America is at war and the demand for metals is constantly and rapidly increasing, it is well known that the problem of training for production is one of the greatest facing the foundry industry. That the work of the A.F.A. Apprentice Training Committee in this respect now is bearing fruit was shown by the large number of entries offered this year in the annual apprentice competitions in gray iron, steel and non-ferrous molding and in patternmaking.

Since the first Apprentice Contest was staged at the Milwaukee convention in 1924, competition has become keener and keener, standards of workmanship have steadily improved, and great interest has been displayed in all sections of the country. This year's contests were featured by the large number of entries and by the fact that apprentices of over 60 different companies were in the finals at Cleveland.

Altogether, nearly 300 individual entries were originally submitted by plants throughout the U. S. Many competitions were held in individual plants, and several chapters sponsored area competitions, the winners of which were exhibited at the Cleveland Show for final judging. Such local competitions were held by the Northeastern Ohio, Quad City, St. Louis, and Wisconsin chapters of A.F.A.

Cash prizes of $30 for first prize, $20 for second prize and $10 for third prize were awarded to winners in each of the four competitions. Winners were as follows:

Gray Iron Molding

1st—Neal B. Hamilton, Caterpillar Tractor Co., Peoria, Ill.
2nd—Edward Drebus, Universal Foundry Co., Oshkosh, Wis.
3rd—Joseph Nawikas, Sheboygan Foundry Co., Sheboygan, Wisconsin

Steel Molding

1st—Bob Bina, Crucible Steel Castings Co., Cleveland
2nd—Richard Barth, Crucible Steel Castings Co., Cleveland
3rd—Arthur Tazalla, Maynard Electric Steel Castings Co., Milwaukee, Wis.

Non-Ferrous Molding

1st—Ferd Sevenz, Ampco Metal Co., Milwaukee, Wis.
2nd—Dan Mrotek, Wisconsin Aluminum Foundry Co., Manitowoc, Wis.
3rd—John Jasso, Wellman Bronze & Aluminum Co., Cleveland

Patternmaking

1st—Casimir Skrocki, Falk Corp., Milwaukee, Wis.
2nd—Walter Zernechal, Hill-Acme Co., Cleveland
3rd—Richard Kilch, Miehle Printing Press & Mfg. Co., Chicago

Seldom has the list of companies whose apprentices submitted castings or patterns in the final judging been as representative or as numerous as this year. As a result, great interest was displayed by visitors to the Foundry Show in the entries on exhibit there. The following firms were represented in the apprentice entries considered for the prize awards:

Northeastern Ohio Chapter

Hill Acme Co.
Aluminum Co. of America
Great Lakes Pattern Co.
Royal Pattern Works
Cleveland Diesel Engrg. Div., General Motors Corp.
Master Pattern Co.
Motor Patterns Co.
Duplex Pattern Works
National Acme Co.
Buckeye Woodcraft Co.
Cleveland Punch & Shear Works
Standard Pattern Works
Western Pattern Works
Westinghouse Electric & Mfg. Co.
Bowler Foundry Co.
Cleveland Trade School
Crucible Steel Castings Co.
West Steel Casting Co.
Wellman Bronze & Aluminum Co.

Quad City Chapter

International Harvester Co., Rock Island, Ill.
J. I. Case Co., Rock Island, Ill.
John Deere Plow Works, Moline, Ill.
Williams-White & Co., Moline, Ill.
French & Hecht, Inc., Davenport, Iowa
Davenport Besler Corp., Davenport, Iowa
Davenport Machine & Foundry Co., Davenport, Iowa
John Deere Harvester Works, East Moline, Ill.
John Deere Spreader Works, East Moline, Ill.
Fairbanks, Morse & Co., East Moline, Ill.
American Machine & Metals, Inc., East Moline, Ill.

St. Louis Chapter

Banner Iron Works
General Steel Castings Corp.

East Chicago Group

American Steel Foundries
Continental Roll & Steel Foundry Co.

Students of Cleveland Trade School demonstrated molding and patternmaking at Foundry Show.

Wisconsin Chapter

Bucyrus-Erie Co.
Allis-Chalmers Mfg. Co.
Filer & Stowel
Falk Corp.
F. & W. Pattern Co.
Maynard Electric Steel Castings Co.
Kearney & Trecker Co.
Chain Belt Co.

Individual Entries

Wisconsin Aluminum Foundry Co., Manitowoc, Wis.
Crown Cork & Seal Co., Inc., Baltimore, Md.
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Lynchburg Foundry Co., Lynchburg, Virginia
Lynchburg Foundry Co., Radford, Virginia
Universal Foundry Co., Oshkosh, Wisconsin
Atlantic Steel Castings Co., Chester, Pennsylvania
Miehle Printing Press & Mfg. Co., Chicago, Ill.
Gisholt Machine Co., Madison, Wis.
American Manganese Steel Div., Chicago Heights, Ill.
E. I. du Pont de Nemours & Co., Wilmington, Dela.
Caterpillar Tractor Co., Peoria, Ill.
Brown & Sharpe Mfg. Co., Providence, R. I.
C. A. Lawton Foundry Co., DePere, Wisconsin
Kaukauna Machine Co., Kaukauna, Wisconsin
Sheboygan Foundry Co., Sheboygan, Wisconsin

The Association takes this opportunity to extend its sincere thanks to the judges of the various contests, for their excellent co-operation and the care taken in analyzing each of the many entries. Judges of the 1942 Contests are shown below:

Steel Molding

Ralph West, Jr., West Steel Castings Co.
Fred Stewart, National Malleable & Steel Castings Co.
Pat Dwyer, *The Foundry*

Gray Iron Molding

W. C. Manwell, Fulton Foundry & Machine Co.
Morten Solberg, City Foundry Co.
W. A. Thomas, Kilby Manufacturing Co.

Non-Ferrous Molding

F. F. Wellman, Wellman Bronze & Aluminum Co.
C. C. Woodfill, Westinghouse Electric & Mfg. Co.

Patternmaking

Carl H. Hamburger, Board of Education
H. W. Zernechel
V. J. Sedlon, Master Pattern Works
W. E. Seebeck
Frank J. Hrabak
A. Anderle
Geo. J. Gedeon, Aluminum Co. of America
E. J. Gutman
F. J. Lnethjohn
Pat Dwyer, *The Foundry*

Cash prizes and certificates of award presented the winners in these competitions are made possible by the A.F.A. Board of Awards. Rules and regulations and the contests themselves are under the jurisdiction of the A.F.A. Apprentice Contest Committee, consisting of the following members. *Chairman,* S. M. Brah, Rustless Iron & Steel Corp., Baltimore, Md.; Frank C. Cech, Cleveland Trade School, Cleveland; H. L. Charlson, American Steel Foundries, East Chicago, Ind.; J. Morgan Johnson, Tri-City Manufacturers Ass'n, Moline, Ill.; C. W. Wade, Caterpillar Tractor Co., Peoria, Ill., and G. A. Zabel, Universal Foundry Co., Oshkosh, Wis.

Ladies Enjoy Excellent Program

CONGRATULATIONS to the Northeastern Ohio Chapter Ladies' Entertainment Committee, headed by Sterling Farmer, Sand Products Corp., Cleveland, as general chairman, and Mrs. A. J. Tuscany as chairman. They outdid themselves this year in providing an excellent program of entertainment for the 307 ladies who registered for the events.

An innovation this year was the presentation to the ladies of members of a sterling silver spoon souvenir of the 1942 convention.

1943 Nominating Committee Selected

IN accordance with the by-laws of your Association, a Pre-nominating Committee was appointed by the president to suggest to the membership nominations for four members to serve with the last three living past presidents of your Association as the 1943 Nominating Committee. Members of the Pre-nominating Committee were as follows:

Carl H. Morken, Carondelet Foundry Co., St. Louis, Mo., *Chairman.*

W. G. Reichert, American Brake Shoe & Foundry Co., Mahwah, N. J.

C. E. Sims, Battelle Memorial Institute, Columbus, Ohio.

In the absence of the chairman of the Pre-nominating Committee at the Annual Business Meeting, Secretary Kennedy presented the members for election:

John Lowe, Battelle Memorial Institute, Columbus, Ohio.

John W. Porter, American Steel Foundries, East Chicago, Indiana.

H. M. St. John, Crane Co., Chicago, Ill.

R. J. Teetor, Cadillac Malleable Iron Co., Cadillac, Mich.

On presentation of the report, the above members were unanimously elected to serve with Past Presidents H. S. Simpson, National Engineering Co., Chicago; L. N. Shannon, Stockham Pipe Fittings Co., Birmingham, Ala.; and H. S. Washburn, Plainville Casting Co., Plainville, Conn., as members of the 1943 Nominating Committee. Past President Washburn will act as chairman.

Jack Cunningham, C. W. & C. Old Timer, Dies

JACK CUNNINGHAM, 79 year old foundryman, who spent 66 years in the foundry industry and 31 of those years

Jack Cunningham, an Old Timer, who spent 66 years in the foundry.

with the Campbell Wyant & Cannon Foundry Co., Muskegon, Mich., died recently. Jack was one of the real old timers in the foundry world and was quite proud of his record. He was especially active at the Old Timers' Booth during the 1940 Chicago convention, where he greeted and made many friends. His passing will be deeply felt by his friends and the Association.

Cuts and Washes Due to Gas and Metal Erosion in Gray Iron Work

By E. J. Carmody,* Chicago, Ill.

This is the fifth in a series of articles prepared by members of the Gray Iron Division Committee on Analysis of Casting Defects. These have been published continuously in this publication since December, 1941. The list of defects to be covered was published in the November issue. Defect number 3 on this list is cuts and washes due to gas and metal erosion. The author defines this defect and lists the causes and remedies for this type of trouble.

CUTS are quite common in some classes of work where the sand is not properly prepared for the temperature range and fluidity of the metal poured. Improper distribution of gates usually involves "putting" too much metal through one gate. Having the gates arranged so the metal drops or runs over the sand requires a strong sand condition. Restricted gates where the metal must enter under force will have a distinct tendency to promote cutting.

Washes usually result from poorly directed streams of metal impinging on weak or improperly secured portions of the mold (Fig. 1). Sometimes it may be difficult to regate a casting, so it becomes necessary to improve either the molding technique or sand condition, or both.

Gas erosion usually occurs on the cope side and generally is the result of the metal drying the cope surface of the mold, then the rush of gases through the risers easily erodes the cope.

As pointed out in the description, these three defects will have a common appearance in that the casting will not be true to the pattern at one or several points by having rough spots or excess metal. At some other point on the cutting, usually the cope, dirt or sand inclusions will be found.

This type of defect should not be confused with scabs, buckles, rat-tails, pull-downs, or blacking scabs, which in some instances could be easily mistaken as cuts, washes, or eroded areas. This type of defect was covered by another member of the defects committee, L. E. Everett, Kaukauna Machine Corp., Kaukauna, Wis., in the March *American Foundryman*, pages 8 to 10. For further information on scabs, buckles, rat-tails and pull-down read this article.

No. 3. Cuts and Washes Due to Gas and Metal Erosion

Definition:

Cuts and Washes—Cuts and washes are the result of metal erosion, caused by metal flowing over the mold or cored surface. Cuts are sections of the mold surfaces eroded by the flow of metal either directly in front of the gate lead or other sections of the mold where there is gatelike action of the flow. Washes are protruding or irregular sections of sand or core that are broken away from the mold or core surface. Gas erosion is due to the rush of hot gases from the mold usually found in the cope and risers or adjacent to the riser. All have common appearance—rough spots and excess metal at place where defect occurs, and usually sand inclusions at some other part of the casting.

Causes:

A. *Due to Design*
   1. Metal flowing over exposed surfaces for too long a period.

B. *Due to Pattern, Flask Equipment and Rigging*
   None.

C. *Due to Sand*
   1. Too high or too low moisture.
   2. Low green strength.
   3. Low, dry or hot strength.
   4. Low permeability.
      a. Too high fines.
      b. Too low grain fineness or poor grain distribution.
   5. Type of bonding material used.
   6. Too much carbonaceous or gas producing material.

D. *Due to Cores*
   1. Weak surface cores.
   2. Improperly baked, either over or under.
   3. Cores not properly coated.
   4. Low permeability.
   5. Improperly vented.
   6. Insufficiently reinforced.

E. *Due to Molding Practice, Gating and Risering*
   1. Soft and hard ram.
   2. Improper gating.
      a. Not gated so that metal cushions itself.
      b. Too much metal through gate.
      c. Improper distribution of gates.
      d. Improperly choked gates.
      e. Gate permitting metal to impinge on mold or core surface.
      f. Too small gates producing nozzle effect.
   3. Improperly secured mold or core surfaces.

F. *Due to Iron Composition*—None.

G. *Due to Cupola Operation*—None.

H. *Due to Pouring*
   1. Excessive pouring temperature for molding material used.

I. *Miscellaneous*—None.

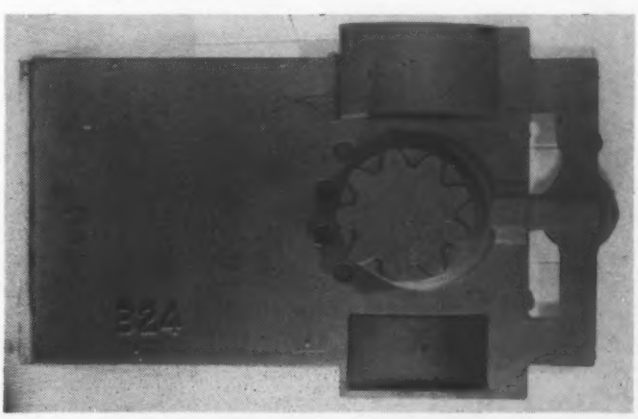

Fig. 1—A Casting Containing Washes.

*Foundry Engineer, C. C. Kawin Co., and Vice Chairman, Committee on Analysis of Casting Defects.

CHAPTER OFFICERS

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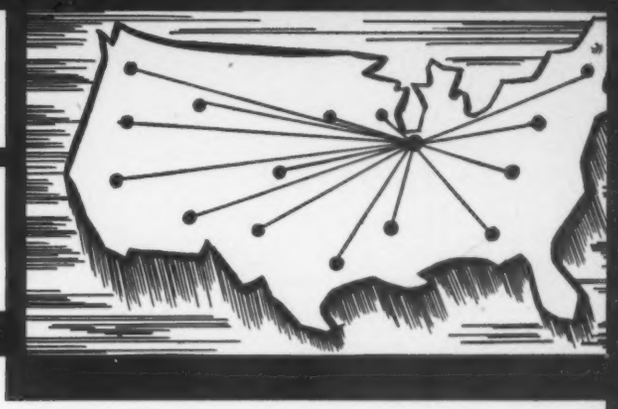
Chapter Activities



Eastern Canada and Newfoundland Chapter Formed

By R. W. Bartram*, Montreal, Quebec, Canada

ANNOUNCEMENT of the formation of the Eastern Canada and Newfoundland Chapter of A.F.A. by Director Harold J. Roast, Canadian Bronze Co., Ltd., Montreal, brings to the Association its 23rd chapter. The announcement was made at the Annual Business Meeting of the Association on Wednesday, April 22, at the Public Auditorium, Cleveland. Although no formal meetings of the chapter have been held as yet, a strong foundation is being laid for a well organized and active chapter with a strong company and individual membership that will be active and cooperative in the work which will be done in the interest of the members and the Association.

The organizing committee has held several meetings and has appointed a provisional treasurer and has elected a membership committee. This committee has enlisted the help of several outstanding foundrymen in the Montreal area, and all members of the organizing committee are members of the membership committee. Included also are members in other areas of the Province of Quebec, all of whom have undertaken to enroll members in their respective districts.

All the foundries in the larger centers and adjacent areas will be covered by the membership committee in due course. The chapter thus far has been successful in securing the cooperation of 21 members of the Association and has enrolled, as of April 16, 22 new members. One company has changed its membership to a Sustaining membership.

It is intended to call a meeting of the chapter soon to elect officers and plan for a full and complete program for its first year's operation. The program will be a strong one of high standard and interest to the entire chapter membership.

The area covered by the chapter will include Kingston, Ont., which is half way between Montreal and Toronto, with a straight line drawn from Kingston north to Mattawa, Ont. This boundary line has been agreed upon by the Toronto Chapter. The Eastern Canada and Newfoundland Chapter also expects to enroll members and set up their activities to control the eastern part of Ontario, the Provinces of Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and also Newfoundland.

The organizers of the chapter expect to have considerably over 60 members enrolled within the next month.

Editor's Note: May we congratulate the organizers of our Baby chapter for their excellent progress and welcome not only the group as a new chapter of A.F.A. but also the individual new members, who, we are sure, will find their contacts broadened and their knowledge of foundry practice increased through the close association afforded by their activity in the new Eastern Canada and Newfoundland Chapter.

*Chairman, Organizing Committee, Eastern Canada and Newfoundland Chapter, and Robt. W. Bartram, Ltd.

Information on Machine Tool Castings at Detroit

By O. E. Goudy,* Detroit, Mich.

THE March 19 meeting of the Detroit chapter was held at the Rackham Educational Memorial Building. This was the first meeting held in this fine building, and it is planned that future meetings will be held here. With 100 in attendance, Chapter Vice-Chairman F. A. Melmoth, Detroit Steel Casting Co., introduced R. E. Kennedy, A.F.A. Secretary, who discussed the Cleveland Convention.

As a coffee talk, Frank Steinebach, Editor, *The Foundry*, who had served with the O.P.M. in Washington, gave a short talk of his experiences and how the foundry industry is related to the defense program. He explained that investigations are being made to determine the possibility of replacing certain parts now difficult to obtain with more readily obtainable castings; that is certain steel castings, or forgings, might be replaced with malleable castings, or in some cases, iron castings might replace other parts. He further gave an idea of the large number of castings which are to be required in the months to come, and that every effort must be put forth to meet these requirements, also the importance of quality for our present needs, as well as the future best inter-

*Kelsey-Hayes Wheel Co., and Reporter, Detroit chapter.

ests of the foundry industry, are of utmost importance.

The principal speaker of the evening was Frank J. Dost, superintendent, Sterling Foundry Co., Wellington, O., and President, Northeastern Ohio chapter, who spoke on "Machine Tool Castings" and their methods of casting. Mr. Dost first pointed out how, over a long period of time, microscopic examinations had been made on certain machine castings which had failed because of scoring on ways or wearing parts, and also micro examinations on castings which had not failed. It was found that castings which scored or grooved always showed a dendritic structure. By means of slides he illustrated that a nice flaky graphite, along with a lamellar pearlite, was most desirable and proved satisfactory in service. He further illustrated that when primary ferrite is present it dislodges under heavy load and this is the start of scoring and early failure of the machine. It had been his company's experience that an addition of amorphous graphite to the ladle eliminated primary ferrite, by producing a graphite nuclei and thereby a flaky graphite in the castings. It was also pointed out, that insofar as wearing qualities are concerned, a miscroscopic examination is made on a test piece from each casting to determine whether or not the casting is to be accepted or rejected.

After a general discussion of questions and answers led by Technical Chairman R. G. McElwee, Vanadium Corp., a rising vote of thanks was extended to F. J. Dost.

Cincinnati Stresses Personnel Relations

By Henry M. Wood,* Cincinnati, Ohio

CHARLES W. Jones, general superintendent, W. H. Block Co., Indianapolis, Ind., was the guest speaker at the Cincinnati District chapter meeting held April 7 at the Hotel Netherland Plaza. Some 50 members and guests were in attendance and over which Chapter Chairman Wm. Ball, Jr., Edna Brass Mfg. Co., presided.

In introducing the speaker, Chairman Ball referred to the importance of personnel in winning the war. In the speakers presentation he defined the word personality as "Behavior Pattern" and elaborated upon this point. He emphasized the fact that what he had to say concerning personnel relations applied equally as well to the foundry as to the department store which he represented. Mr. Jones' talk brought to light many new ideas and an interesting discussion period.

*W. W. Sly Mfg. Co., and Secretary, Cincinnati District chapter.

Pictures taken at the April meeting of the Central Indiana chapter.

Central Indiana Elects Officers at April Meeting

By R. A. Thompson,* Indianapolis, Ind.

THE final meeting of the season for the Central Indiana chapter was held Monday, evening, April 6, at the Washington Hotel, Indianapolis, Ind. Approximately 70 members and guests were on hand for this all important session. The principal speaker was H. C. Aufderhaar, metallurgist, Electro Metallurgical Co., Chicago, Ill., who spoke on "Alloys and Foundry Control." Chapter Chairman H. B. Harvey, Indiana Foundry Corp., Muncie, Ind., presided over the meeting. Serving as technical chairman was B. P. Mulcahy, Citizens Gas & Coke Utility, Indianapolis, Ind.

Prior to the main talk the following men were elected to serve as officers of the Central Indiana chapter for the ensuing year: *Chairman,* B. P. Mulcahy, Citizens Gas & Coke Utility, Indianapolis; *Vice-Chairman,* Richard Bancroft, Perfect Circle Co., Newcastle; *Treasurer,* Robert Langsenkamp, Langsenkamp-Wheeler Brass Works, Indianapolis; *Secretary,* R. A. Thompson, Electric Steel Castings Co., Indianapolis. The following are to serve as *chapter directors:* (for three years) A. E. Murphy, Hickman, Williams Co.; Tom Wolfa, John M. Glass Co.; Harold Lurie, Cummins Engine Co., Columbus, Ind.; and (for two years) J. P. Lentz, International Harvester Co., to fill the unexpired term of Mr. Bancroft, who was elected vice-chairman.

Mr. Aufderhaar's talk centered around high strength cast irons and the demand in recent months for higher strength metal. Also discussed were the alloys used for control purposes, with special attention given to ladle addition alloys.

* Electric Steel Castings Co., and Secretary, Central Indiana chapter.

Ontario Holds Special Meeting on Non-Ferrous

By G. L. White,* Toronto, Ont.

A SPECIAL meeting of the non-ferrous group, Ontario chapter, was held on April 10, at the Royal York Hotel, with approximately 75 in attendance, with Chapter Chairman N. B. Clarke, Steel Co. of Canada, Ltd., presiding. Mr. Clarke turned the conduct of the meeting over to Joe Sully, Sully Brass Foundry, Ltd., Toronto.

The first speaker was J. Nixon, Whitehead Metal Products Co., Buffalo, N. Y., who spoke briefly on gating and risering of non-ferrous pressure castings. Mr. Nixon had some excellent slides showing various types of non-ferrous castings and the types of gates and risers used to secure satisfactory results. It was indicated that gating and risering was not a cure-all but that foundry superintendents save a great deal for their companies by proper design and placing of gates and risers. Generally from the examples shown from the experience of Mr. Nixon and the foundrymen present, it was considered advisable to feed into the riser whenever possible. However, it was pointed out that each casting had to be considered on its own merits.

Introducing a discussion of substitutes for tin in bronze, K. H. J. Clarke, Metal Controller's office, spoke briefly, emphasizing the serious situation in regard to tin and the necessity for its conservation by various means.

A brief discussion of 88-5-5-2 bronze indicated that it generally produced a good pressure casting without any tendency for segregation. Normal foundry practice for gun metal had been found satisfactory, save that there is a greater tendency for oxidation with 88-5-5-2 and it is necessary to add a little phosphur copper to deoxide the metal.

A large part of the discussion centered around the silicon bronzes. Summarizing the discussion briefly, it would appear that silicon bronzes have met with very good success generally upon structural castings. There has been a little more difficulty encountered with pressure work but it appears to be chiefly due to the fact that most foundries have had little experience with this material. Some plants have made pressure castings very successfully and there are indications that silicon bronze will be suitable for worm gear production.

An interesting discussion of the specific difficulties that certain foundries have encountered with silicon bronzes made a real contribution to a more efficient use of this material as a substitute for tin bronzes.

The meeting voted that the Executive of Ontario chapter should be asked to choose a Committee to co-operate with the Metals Controller, and particularly to study foundry experience on the various problems that are arising at the present time.

*Westman Publications, Ltd., and Secretary-Treasurer, Ontario chapter.

Steel Foundry Operation Presented at Michiana

By L. L. Andrus,* Mishawaka, Ind.

THE discussion of electric steel foundry operation was successfully handled by I. R. Wagner, Electric Steel Castings Co., Indianapolis, at the Michiana chapter meeting held April 13 at the Bronzewood Room, Hotel LaSalle, South Bend, Ind. This regular meeting was attended by 60 members. Presiding officer was L. L. Andrus, American Foundry Equipment Co., Mishawaka, Ind.

Mr. Wagner, past chairman, Central Indiana chapter, presented a color sound film showing foundry operations at his plant. He explained how the film was being used in the training of new employes in order to show them what actually occurs at each point in foundry operation.

Chapter Director V. C. Bruce, Buckeye Products Co., Elkhart, presided over the annual quiz program. Questions were sent in by the members and the answers were given by members of the chapter. The answers were judged by a board of experts and was composed of A. C. Arbogast, Northern Indiana Brass Co., Elkhart, on non-ferrous work; C. F. Carson, National Supply Co., Toledo, steel and gray iron practice; and E. O. Stamm, Buckeye Products Co., Cincinnati, core room practice. Prizes were given to those men the judges thought submitted the best answers.

*Vice-president in charge of sales, American Foundry Equipment Co., and Secretary-Treasurer, Michiana chapter

Northern California Talks of Ordnance Problems

By G. L. Kennard,* San Francisco, Calif.

THE Northern California Chapter's regular meeting was held April 10 at the Alexander Hamilton Hotel, San Francisco. Seven Southern California chapter members paid us a greatly appreciated surprise visit. They were all foundrymen under the leadership of Robert Gregg, chapter past chairman, and made a special trip to San Francisco definitely in the interests of the gray iron founders of their section.

Chapter Chairman E. M. Welch, American Manganese Steel Div., Oakland, presided and reported five new members enrolled during the last month. One of these was Chas. T. Post, local representative, *Iron Age*, who has consented to act as publicity man for the chapter.

As a special favor the Army Ordnance Office made it possible for us to have as a main speaker Lt. J. W. Scott, who not only handled his own subject, "Ordnance Planning," but Ordnance Procurement Problems." The latter subject was to have been given by Lt. Ivor de Kirby, also of the local staff, but who had that day been detailed as Aide to General Wm. S. Knud-

*Northern California Foundrymen's Institute and Secretary-Treasurer, Northern California Chapter.

sen on his arrival at San Diego. Lt. Scott gave a clearer picture of ordnance problems than most of us had had heretofore, and some slight indication of what industry might expect to be called to do in the near future.

Another special feature of the evening was the showing by Ed Posson, Columbia Steel, of the new technicolor sound film "Unfinished Rainbows," the latest contribution by Aluminum Company of America, and we may say it was "light and glittering" as is the metal itself.

The meeting was one of intense interest in all its features, and was attended by a total of 72 members and guests.

Light Metal Castings Talk Heard at Metropolitan Meeting

By R. E. Ward,* New York, N. Y.

ONE hundred sixteen men attended the dinner and over two hundred attended the lecture at the Metropolitan chapter's April 6 meeting held at the Essex House, Newark, N. J. Chapter Director D. Polderman, Jr., Whiting Corp., presided over the meeting. "Aluminum and Magnesium Castings" was the topic of the evening. With Harry C. Lampker, foundry superintendent, Wright Aeronautical Corp., as speaker, and William Wilson, Jr., foundry superintendent, Eclipse Aviation Foundry, as technical chairman, the light metal casting situation was well in hand.

Mr. Lampker covered all phases in the manufacture of aluminum and magnesium castings. He outlined the generally accepted melting procedures; then described the defects which can occur, their causes, and the methods for eliminating them.

In melting aluminum, iron pots are used since they offer easier stabilization of metal temperature. Pyrometers are used for temperature control. Chlorine and sometimes nitrogen are used for purifying the metal; freezing and remelting help to eliminate pinhole porosity. In order to get good castings consistently, it is necessary to watch melting and pouring temperatures, and to avoid soaking and rapid cooling of the molten metal.

Magnesium melting makes use of the flux pots for remelting scrap and steel crucibles for melting and pouring. Superheating of the metal in the crucible reduces the subsequent grain size. Fluxes are added during melting to purify the metal and keep it from burning. They should never be added just before pouring since they will enter the mold cavity with the metal.

Synthetic sand is used for aluminum and magnesium since it has a high permeability and can be controlled more easily. Oil sand cores are used in nearly all light metal foundries.

Mr. Lampker pointed out that most of the defects such as coarse grain, excessive intercrystalline shrinkage, flux inclusions, pitting, and cold shuts may be attributed, in general, to improper melting and pouring technique.

*Metallurgist, Eclipse Aviation Div., Bendix Aviation Corp., and Asst. Chairman, Publicity Committee, Metropolitan Chapter.

Foundry Relations Talk at Western New York

By Eliot Armstrong,* Buffalo, N. Y.

THE Western New York chapter held its April meeting in Rochester. Dinner was served in the Faculty Club, Rochester University at River Campus, to about forty members and guests. Following dinner Al Sigl, newspaper man and radio commentator of the Gannett papers, gave a most entertaining talk on his radio experiences and as the Founder of the Legion of Blood Donors, a stirring portrayal of the wonderful work being accomplished on a purely voluntary basis by the organization which he started from scratch and has expanded into membership of thousands now serving almost nationally.

The diners then moved over to the auditorium where they were joined by many more guests and members to hear William J. Picard, Chairman, Board of Standards and Appeals of New York State, discuss the relationship between the state government and the foundry industry which has become so much more intimate through the adoption of a new Foundry Code effective Feb. 1. Mr. Picard is an old friend, having talked to us last year, and paid the industry of the state a handsome compliment by describing our cooperation as a matter of action rather than words. During a very extended question and answer period many more unseen avenues of cooperation were road marked for future use. All in all Mr. Picard's talk was well received.

* Secretary, Western New York Chapter.

Gray Iron Lecture at Philadelphia by Kinzel

By B. H. Bartells,* Philadelphia, Pa.

THE subject of the March meeting of the Philadelphia chapter held at the Engineers Club, March 13, was "Recent Developments in Gray Iron." The speaker, Dr. A. B. Kinzel, chief metallurgist, Union Carbide and Carbon Research Laboratories, New York City, was introduced by the technical chairman, Louis C. Lane, chief metallurgist, Florence Pipe Foundry and Machine Co.

Dr. Kinzel very ably discussed the problem of the small foundry in the production of high test cast iron, and stressed the necessity of oxidizing and de-oxidizing of cast iron in order to obtain the character of matrix and the graphite dispersions required to give the desired properties of high test cast iron. He also discussed in detail the action of numerous alloying elements used as oxidizers and deoxidizers.

The after dinner speaker, Michael Dorizas, professor of

*University of Pennsylvania, and Reporter, Philadelphia Chapter.

geography, University of Pennsylvania, spoke on "Events of the Day." His talk on the situation in Europe and in the Pacific, with movies covering the war in China, Libya and Russia, proved most instructive, interesting and enlightening. "Mike" has talked before the chapter on previous occasions and is famous for his dynamic talks and knowledge of current events.

The meeting, one of the most successful and profitable in the history of the chapter, was attended by three hundred members and guests.

Chapter Chairman Harry Reitinger, U. S. Pipe & Foundry Co., Burlington, N. J., presided.

Foundry Paper Contest Sponsored by Twin City

THE Twin City chapter, following in the footsteps of other A.F.A. chapters, is sponsoring a student technical paper contest for members in good standing of the University of Minnesota Student chapter, the only A.F.A. chapter of its kind. The papers must be original work of foundry interest and should not be less than 2000 or exceed 8000 words. The subjects of the students' papers were submitted for approval to Fulton Holtby and H. F. Scobie, University of Minnesota foundry staff members, on or before April 15. The completed papers must be entered on or before May 15 with the winners to be announced on May 20. Prizes of 20, 10 and 5 dollars respectively for first, second and third place winners will be awarded.

Winners of the contest will present their papers orally before a joint meeting of the Twin City chapter and the University of Minnesota Student chapter on the evening of May 25 at Kipp's Buckhorn, Long Lake, Minn., this meeting to be known as "Student Night."

Judges for the contest are: *Chairman*, H. F. Scobie, University of Minnesota; H. H. Blosjo, Minneapolis Electric Steel Castings Co.; and A. Carlstrom, Smith, Sharpe Co.

Wisconsin Chapter Group Meetings Highly Successful

By G. K. Dreher,* Milwaukee, Wis.

THE Wisconsin chapter swung back into its normal routine after a highly successful Foundry Conference with its Friday, March 20, sectional meetings. After dinner, two motion pictures, produced by the International Harvester Co., Chicago, entitled, "The Marines Have Landed," and "The Strong Shall Be Free," were shown to the entire group. Arrangements for the picture were made through Russ Anderson, Belle City Malleable Iron Co., Racine. After this showing the meeting broke up into groups.

Frank Kulka, Motor Castings Co., chairman of the gray iron group, presented the speaker, Jos. Gitzen, Delta Oil Products Co., who gave a very interesting talk on core oils, their manufacture, and bonding of core sand mixes. A very important discussion developed on the use of iron oxide and chrome oxide, its importance and use in cores. Use of black core oils was thoroughly discussed. The fact that they are produced to specification at present was important.

D. I. Dobson, General Malleable Co., chairman, malleable group, presented H. E. Fellows, Milwaukee Molding Machine Co. Mr. Fellows spoke on advanced molding machine practice and equipment. Mr. Fellows gave quite a history of molding machines in the foundries and brought out the increase in production of castings, and also the improvement in quality of castings which the molding machine has made possible. It also was brought out how the molding machine has made it possible to train molders for machine molding in a much shorter period of time than was required for old methods of hand ramming.

The subject at the non-ferrous meeting was on "The Use of Secondary Aluminum in Place of Primary Alloy" as directed recently by the War Production Board, and was very well presented by R. Brown, Jobbins Co.

*Mgr., Ampco Metal, Inc., and Secretary-Treasurer, Wisconsin chapter.

A few of the speakers and members present at the March meeting of the Wisconsin chapter. *(Photos courtesy John Bing, A. P. Green Fire Brick Co.)*

L. A. Pankratz, Quality Aluminum Co., was chairman. Mr. Brown outlined some of the difficulties of producing a definite alloy out of borings of good quality which would compare favorably in analysis and physicals with the primary metal so that it would be acceptable to government departments.

The steel group, with Fred A. Pritzlaff, The Falk Corp., as chairman, drew a capacity crowd to hear N. Koch, Milwaukee Steel Foundry Co., and C. F. Haertel, The Falk Corp., speak on "Heading and Gating."

Mr. Koch spoke on gates and risers commonly used on small to medium sized castings for both carbon and alloy steels. Topics touched on included the advantages and disadvantages of various types of gates; the use of multiple gates, round risers versus rectangular risers, blind risers, the use of the mold reversal method. He also described, in detail, the practice of using "flogging" cores in risers, which permits easy removal of the riser from the casting.

Mr. Haertel's talk dealt mainly with gate and riser applications for heavy carbon steel castings, ranging up to 90 tons. He spoke on the fundamental requirements of a good gate and described the various types of gates suitable for heavy work. In the part of his talk devoted to risers, he discussed the use of annular risers, experiences with various types of blind risers; method used in removing extremely large risers from castings and the yield obtained on various types of castings. Mr. Haertel illustrated his talk with an excellent group of slides, showing the various stages in the production of cast steel gears and other large miscellaneous castings at The Falk Corp. These slides clearly showed the gating and heading used on different sizes of gears.

Northeastern Ohio Hears About Cupola Practice

By Pat Dwyer,* Cleveland, O.

EXAMPLES of rather unusual cupola practice in a foundry melting 750 tons per day were presented by John Lowe, Battelle Memorial Institute, Columbus, O., before 125 members and guests, Northeastern Ohio chapter, at the Tudor Arms, Cleveland, April 9. C. E. Westover, executive vice president, American Foundrymen's Association, Chicago, spoke optimistically of the prospects for the convention and exhibition in Cleveland. He presented many interesting comments on the immense amount of work and planning involved in staging one of these events, particularly in recent years when the facilities of only a few cities are in position to cope with the display and attendance.

Chairman Frank Dost, Sterling Foundry Co., Wellington, O., read the list of nominations of officers for the coming term: *president,* J. H. Tressler, Hickman, Williams & Co.; *vice president,* James G. Goldie, Cleveland Trade School; *secretary,* Jack Lathrop, *The Foundry; treasurer,* Russell F. Lincoln, Osborn Mfg. Co. *Directors,* 3-year term: Frank Dost, retiring president; E. A. McDonald, Berted Foundry Co., Columbiana, O.; E. M. Follman, Griffin Wheel Co.; J. J. Witenhafer, Lake City Malleable Iron Co.; Tom Johnston, Republic Steel Co. Fred Pascoe, Westinghouse Electric & Mfg. Co., was nominated to fill the unexpired term of Mr. Goldie.

Melting units in the plant described by Mr. Lowe included six cupolas, an electric furnace and a converter to make possible the production of metal held to close specifications as a whole, but with individual lots varying to a considerable extent in chemical composition and physical characteristics. Charges consisted of pig iron, cast iron and steel scrap, briquets prepared on the premises, and various amounts of the different alloys usually employed in the production of high class iron castings. The speaker dwelt to a considerable extent on the life of refractories in the cupola lining exposed in periods ranging from 16 hours per day, to steady operation for 5 days. A water cooled lining 36-in. high faced with 3-in. refractory bricks gave satisfactory service.

*Engineering Editor, The Foundry and Reporter, Northeastern Ohio Chapter.

Gating and Risering Studied by Ontario

By G. L. White,* Toronto, Ont.

AT the meeting of Ontario chapter, Royal York Hotel, Toronto, Friday, March 27, approximately 120 foundrymen turned out to hear the technical paper and to welcome A.F.A. Vice-President D. P. Forbes, Gunite Foundries Corp., Rockford, Ill. Chapter Chairman N. B. Clarke, Steel Co. of Canada, Ltd., presided over this very interesting meeting.

Mr. Forbes brought the greetings of the American Foundrymen's Association and the Northern Illinois-Southern Wisconsin chapter to Ontario chapter members. He referred to the chapters as the lifeblood of the American Foundrymen's Association and indicated how the purposes of the A.F.A. have been accomplished in a much greater way since the development of the chapters. Mr. Forbes made reference to the convention and to the new developments in books and services which will mean a great deal to members of A.F.A.

In discussing gating and risering for pressure work, H. H. Judson, Gould Pumps, Inc., Seneca, N. Y., dealt particularly with the non-use of risers on heavy pressure work. In casting heavy multi-stage centrifugal pump castings and reciprocating pump cylinders and valve boxes, spongy or open grained spots

*Westman Publications, Ltd., and Secretary-Treasurer, Ontario chapter.

were sometimes encountered under risers. With larger and higher risers, the spongy spots still persisted but when risers were eliminated, the spongy spots disappeared. The salient points of practice in producing these castings, weighing from 1000 to 2000 lb., with sections from 5/8 to 3½-in., to be tested at pressures from 500 to 3500 lb. per sq. in., are as follows: (1) Molds are poured with hot iron; (2) molds are hard, rigid dry sand molds; (3) molding sand mixtures and the core mixtures are open and vent freely; (4) iron mixtures used contain 25 to 85 per cent steel rails or structural steel scrap in the charges; (5) deep copes are used to provide a ferro-static head above the castings; and (6) gates are arranged so that clean iron enters the mold.

Mr. Judson discussed in some detail each of the six principal points in their foundry practice on these heavy pressure castings. In the ensuing discussion, Mr. Judson was assisted by J. Nixon, Whitehead Metal Products Co., Buffalo, N. Y. The discussion dealt principally with the cupola practice involved in the production of metal for pressure work of this type.

Patternmaking Session Held at Cincinnati

By Henry M. Wood*, Cincinnati, Ohio

THE regular monthly meeting of the Cincinnati District chapter was held Tuesday, March 10, at the Hotel Alms. Over 140 members and guests were present at the meeting, when patternmaking and molding were discussed. Among those present were students from Cincinnati's manual training high schools, invited by the chapter to study patternmaking and molding problems and hear them discussed. The speakers for this meeting included Herman K. Ewig, Cincinnati Milling Machine Co.; Ray J. Redmond, Buckeye Foundry Co.; E. B. Hausfeld, Ohio Pattern & Foundry Co.; and Charles Appel, Lunkenheimer Co.

The prize patterns which had been submitted in the 1941 A.F.A. Apprentice Contest in Patternmaking were on display. The various speakers referred to the patterns during the course of the meeting and after the discussion various groups of boys gathered around different patterns for further explanations and comparisons.

Mr. Redmond, in opening the meeting, sketched the development of the foundry industry from its inception up to its present major importance in National Defense work.

Mr. Ewig explained a number of points about molding, patternmaking and blueprint reading. His presentation was facilitated by individual blueprints and reprints from the *American Foundryman*, January, 1942, issue concerning Frank Cech's article on "Review of Patterns Submitted in 1941 Apprentice Contest." Each member and guest was supplied with a copy of this resume.

A most interesting and lively discussion period followed these talks and the boys from the manual training schools showed real enthusiasm for the subjects they heard presented. Many questions were asked which were answered by different A.F.A. members.

*W. W. Sly Mfg. Co., and Secretary, Cincinnati District Chapter.

Cast Iron Development Is Outlined at N.I.-S.W. Meeting

By J. R. Cochran,* Rockford, Ill.

"RECENT Developments in Cast Iron" were discussed before 50 members and guests of the Northern Illinois-Southern Wisconsin chapter meeting held at the Hotel Hilton, Beloit, Wis., April 14. The speaker was R. G. McElwee, Vanadium Corp. of America, Detroit, Mich. The presiding officer of this meeting was Chapter Chairman G. K. Minert, Gunite Foundries Corp., Rockford, Ill.

The speaker's talk was highly informative and brought forth several questions and discussions. His first premise was that the foundry industry, particularly the gray iron foundries, has a selling job to do. Designing engineers must be sold on gray iron castings—they must be informed and persuaded that the present day castings are only distant relatives of the 15,000 p.s.i. tensile castings which were standard 20 years ago and are still prominent in the minds of designers today.

The so-called captive foundries have done excellent work in replacing forgings in such articles as crankshafts, camshafts and many other parts but the jobbing foundry must take over from there and persuade the general public that they can produce quality castings.

Great strides have been made recently in developing alloys to make results more uniform and to help the foundry industry do a better job for the nation's war program.

*Metallurgist, Sundstrand Machine Tool Co., Foundry Div., and Technical Secretary, Northern Illinois-Southern Wisconsin chapter.

Cupola Operation Talk By Good At Pittsburgh

By R. L. Hartford,* Pittsburgh, Pa.

RECENT developments in cupola practice were outlined for the Pittsburgh Foundrymen's Association by R. C. Good, Electro Metallurgical Sales Corp., Pittsburgh, at the March meeting. Factors to be considered under present conditions when all desirable materials are not available were discussed, as well as the possible substitution of available materials to attain desired results both in melting practice and in physical properties of the finished castings.

Closer control of slags and slag characteristics is one avenue

*Pittsburgh Editor, The Foundry.

of escape, which in some cases can take the place of deoxidizers and other additions which are now difficult or impossible to obtain. Close chemical control of the melting process, through the use of scrap of known content as well as slag control, is most important in limiting porosity. Pouring temperatures also assume greater importance under today's conditions, and design of the castings to insure sufficient hydrostatic pressure also helps in controlling porosity.

Effects of ladle additions on porosity are marked. Scale, rust, or iron oxide in any form is a dangerous addition. Soda ash, or any cold material, is apt to increase porosity. Continued remelting of porous material is likely to lock the gas in the molten metal and increase rather than reduce the tendency to make porous castings.

Accident Prevention on NEFA April Program

By M. A. Hosmer,* Boston, Mass.

EIGHTY-FIVE members and guests assembled at the Engineers' Club, Boston, Mass., on April 8 for the New England Foundrymen's Association regular monthly meeting. President Raymond Meader, Whitin Machine Co., Whitinsville, Mass., presided. The speaker was Ralph R. Meigs, assistant chief engineer, loss prevention department, Liberty Mutual Insurance Co., Boston, Mass. The speaker's subject was "Accident Prevention."

The principal point which Mr. Meigs wanted to make was that "safety" should be made a part of normal plant operation rather than something to be forced onto employees. He said that it was just as much a mistake for an employee not to be able to recognize the cause of a possible accident as it was for that employee to leave a core out of a mold. In other words, the man works toward accident control as he would toward perfection in his job. In most cases causes of accidents are technical and like the basic principles of foundry practice, when effectively applied in the production of castings, will conserve time, manpower and material.

Safety control can be effectively brought about by: A safety program instituted by the management; installation of modern safety devices by the management; and constant effort on the part of the management to get employee cooperation.

The question of "green" help, now so important a factor, can be effectively handled by acquainting these new men with the hazards peculiar to their job.

*Chemist, Hunt-Spiller Mfg. Co., and Reporter, New England Foundrymen's Association.

Pittsburgh Foundrymen Elect New Officers

By R. L. Hartford,* Pittsburgh, Pa.

W. H. SATTERFIELD, Pittsburgh Steel Foundry Corp., Glassport, Pa., was elected president of the Pittsburgh Foundrymen's Association for the fiscal year beginning July 1, 1942. E. C. Buerkle, National Bearing Metal Co., Pittsburgh, was elected vice president, and Ferdinand G. Schultz, F. G. Schultz Co., Pittsburgh, secretary-treasurer. Nominations were offered at the April meeting, and election at the May meeting. Executive committee members are as follows: C. J. Scheckhaus, Union Spring & Mfg. Co., New Kensington, Pa.; Harry Kennedy, Continental Roll & Steel Foundry Co., Coraopolis, Pa.; W. J. Laird, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; T. A. Reynolds, McConway & Torley Corp., Pittsburgh, and H. P. Spilker, Sterrit-Thomas Foundry Co., Pittsburgh.

Steel casting production during the war emergency, with special emphasis on the technique used to replace alloy content, was discussed by Dr. C. H. Lorig, Battelle Memorial Institute, Columbus, Ohio. Dr. Lorig stressed the importance of hardenability data in the determination of the properties of the finished casting, and described research on hardenability and its relationship to heat treatment and quenching technique. Citing the fact that castings weighing up to 85,000 pounds have been successfully quenched, the speaker stated that more economical equipment for heat treating large castings is being developed as a result of our war effort.

*Pittsburgh Editor, *The Foundry*, and Reporter, Pittsburgh Foundrymen's Association.

Coke Problems Studied at St. Louis Meeting

By Jack Kelin,* St. Louis, Mo.

THE April 10 meeting of the St. Louis District chapter was held at the De Soto Hotel, with Chapter Chairman Carl Morken, Carondelet Foundry Co., St. Louis, Mo., presiding. Following the reading of the minutes the chairman announced appointment of a nominating committee composed of Roy Jacobsen, *chairman,* Carondelet Foundry Co.; L. Farquhar, American Steel Foundries; Webb Kammerer, Midvale Mining & Mfg. Co.; R. Durkan, M. W. Warren Coke Co.; Jess Bodine, Bodine Foundry & Pattern Co.; and H. Harte, Fulton Iron Works Co.

Harold Wiese, Midvale Mining & Mfg. Co., requested the chapter group to indicate their preference as to afternoon or evening June picnic, and an evening affair was decided upon in view of present conditions.

John Williamson, M. A. Bell Co., chairman, membership committee, pointed out the growing membership of the organization and the chapter chairman indicated that the present membership was the highest in the history of the chapter.

Louis Desparois, Pickands, Mather & Co., directed attention to the Cleveland Convention and plans for transportation.

Chapter Vice Chairman C. B. Shanley, Semi-Steel Casting Co., introduced T. M. Roberts, assistant chief chemist, Laclede Gas Light Co., coke division, who presented an illustrated lecture depicting manufacturing processes used. This talk proved to be very well presented and illustrated and the questions asked by the members brought out some important factors.

*Federated Metals Div., A. S. & R. Co., and Secretary-Treasurer, St. Louis District chapter.

Abstracts

NOTE: The following references to articles dealing with the many phases of the foundry industry, have been prepared by the staff of *American Foundryman*, from current technical and trade publications.
When copies of the complete articles are desired, photostat copies may be obtained from the Engineering Societies Library, 29 W. 39th Street, New York, N. Y.

Alloy Steel

SELECTION. *"The Selection of Alloy Steels," Industrial Heating,* vol. 9, No. 3, March, 1942, pp. 308, 310, 312. Factors influencing the selection of substitute steels to replace those steels previously used which contained alloying constituents that are now difficult to obtain are reviewed in this article. It is suggested that design should be improved wherever possible, a grade and quantity of steel should be employed which will provide only the necessary strength, carburizing should be resorted to wherever wear is a factor, and high carbon contents should be employed to strengthen the core of heat treated material. Also, the proper quenching temperatures should be used to ensure that the maximum benefits will be derived from the alloy used. (S.)

Analysis

METALLURGICAL. *"Colorimetry in Metallurgical Analysis,"* by R. W. Silverthorn and J. A. Curtis, *Metals and Alloys,* vol. 15, No. 2, February, 1942, pp. 245-248. Occasionally a method creeps up that is such a time-saver and so much off the beaten path as to deserve bringing it directly to the attention of metallurgical engineers—and so this article is, so states the authors. Time saving is always important, doubly so under present conditions. This article describes a rapid, accurate colorimetric method for determining manganese and chromium in iron and steel using the spectrophotometer. Manganese and chromium can be determined on the same solution of sample with no preliminary separations in approximately 15 min. and with an accuracy of about 1 per cent. Procedures are given for the analyses of various types of iron and steel. (An.)

Apprentice Training

LABORATORY. *"Training Apprentices in the Laboratory,"* by H. R. McCoy, *The Foundry,* vol. 70, No. 3, March, 1942, pp. 72-73, 153-157. In concluding his two part article the author stresses the importance of apprentices writing down at the time of an analysis or test what is taking place. These notes should go into a small notebook and not on scraps of paper. A few of the examinations and tests are included with this paper to show the type of questions usually asked the apprentices. (Tr.)

Armor Plate

CAST. *"Manufacture of Cast Iron Armor Plate," Industrial Heating,* vol. 9, No. 3, March, 1942, p. 314. In manufacturing this new product, composition, method of heat treating, etc., are left to the maker, so long as it can pass the ballistic tests. Heat treating is a main factor of cast armor plate and the heat treatments employed are 30 to 50 times longer than those for ordinary products, and better heat treating equipment is essential to enable the operator to heat treat with the assurance that the maximum properties of a given piece will be obtained. Five advantages of cast armor plate are listed which concludes the article. (C.)

Cast Iron

BRAKE DRUMS. *"Brake Drums—I,"* by Oliver Smalley, *Metals and Alloys,* vol. 15, No. 2, February, 1942, pp. 256-262. This article deals with brake drums and considerable light is thrown on the general subject of heat checking. Various subjects are presented by the author which have a direct bearing upon the metal such as structure, properties and service; scoring; effect of free cementite and slag; and thermal cracking. The three major requirements that must be considered in the selection of a material for brake drum manufacture are initial cost, performance and service life. (C.I.)

BRAKE DRUMS. *"Brake Drums—II,"* by Oliver Smalley, *Metals and Alloys,* vol. 15, No. 3, March, 1942, pp. 405-411. In this article four types of drum materials are considered; a standard "GD" Meehanite, a molybdenum cast iron, a high test cast iron and a nickel-chromium cast iron. The actual results of performance tests on these four types of brake drum irons—with and without alloy—are given in this paper. (Te.)

GRAPHITE. *"Graphite in Gray Cast Iron,"* by Dr. J. T. MacKenzie, *Pig Iron Rough Notes,* vol. 87, Winter, pp. 5-8. By far the most important effects of graphite are on damping capacity, machinability and wear and galling. Damping, or the ability to absorb vibrations instead of transmitting them, is of vast importance in machine tools, printing presses and heavy machinery. Damping capacity is very high on the soft gray irons and decreases considerably as the strength increases, as the graphite decreases. The excellent machinability of cast iron is due to the lubricating effect of the graphite on both chip and tool and to the lack of ductility caused by the graphite flakes. Graphite is responsible for freedom from galling and for good wear resistance largely by its lubricating qualities and also by its ability to hold oil when it is needed most. (C.I.)

Cleaning

CORE REMOVAL. *"Wet Process of Core Removal,"* by Ronald Webster, *Iron and Steel,* vol. 15, No. 7, March, 1942, pp. 203-204. A study of the removing sand, particularly core sand, by water pressure from gray iron and steel castings. The author reviews the history of this type of work up to the hydro-blast system. The principle of this system is that this blasting method sucks sand at a rather low velocity into a small gun, and ejects it in a very limited space of about 4-in. through a replaceable nozzle, at a velocity of about 26,000 ft. per min. The liner in the nozzle, formerly of rubber, is now a tungsten carbide liner, cast centrifugally, and will last between 250 and 800 hours. In the gun itself, the initial orfice is a little less than one-fifth of an inch. The back pressure of the gun is between 30 and 35 lb. The sand running through the gun amounts to between 70 and 80 lb. per min. The advantages of this system are that a very dirty operation is performed without making any dust, one man may do the job of five or six, the sand may be recovered in a washed and graded condition, and generally fit for cores and facing in proportions up to 90 per cent of the sand going into the dump. Bonding materials are washed out by this process, which involves rebonding, and fits particularly with synthetic sand methods. (Co.)

Coremaking

BLOWING MOLDING SAND. *"Blowing Molding Sand Into Cores,"* by Pat Dwyer, *The Foundry,* vol. 70, No. 3, March, 1942, pp. 62-64, 143-145. A review of the core blowing technique used by the Electric Auto-Lite Co. in making cores for sleeve type castings approximately 5-in. in diameter and 14-in. in length. Sand for the cores is a mixture of lake and bank sand with permeability 60, moisture 5 per cent and green strength 8. A detailed description is given concerning the production of cores and how the workmen work together in making the molds and cores. Cores are reinforced with a 1-in. diameter cast iron arbor and extends about an inch beyond the core print at each end of the core. Compression for particular job described in this paper is maintained at 100 pounds per square inch. (Co.)

Costs

PATTERN SHOP. *"Collecting Pattern Shop Cost Data by Separate Jobs,"* by Albert E. Grover, *The Foundry,* vol. 70, No. 3, March, 1942, pp. 68-69, 140-142. A review of a cost method for a pattern shop engaged in making new patterns, rebuilding patterns, repairing old patterns, building flasks and bottom boards and maintaining and repairing buildings and equipment. Costs are divided into direct materials, direct labor and burden (overhead). The author comments upon each division in detail and explains what each one should cover. Work orders under this set-up come under two classes—jobbing and continuous. With the use of various cards shown in the article a summary of pattern shop costs can be made quite

easily. This procedure brings together the material costs for the classes of work done, time spent on each, labor costs, and the application of the total month's burden to the several classes of work on the basis of time consumed. (Pa.)

Magnesium Alloys

SPECTROGRAPHIC ANALYSIS. *"The Routine Spectrographic Analysis of Magnesium Alloys,"* by G. P. Carter, *The Metal Industry* (London), vol. 50, No. 8, February 20, 1942, pp. 140-143. The main problem in working out a routine method for the determination of Al up to 15 per cent, Mn up to 2.75 per cent and Zn up to 4 per cent is to find a procedure reproducible enough to give results of an accuracy sufficient for routine control. The variables which influence the accuracy are: excitation conditions and choice of analysis lines; type of photographic plate and length of exposure; electrode positioning; electrode shape; casting electrodes; preliminary sparking time; and number of exposures for each analysis. Each of these is studied in detail in this paper. A selection is then made of the conditions to give the most reproducible spectra and different methods of analysis considered in which these conditions could be applied. The Internal Standard method was finally chosen as the most convenient for routine analytical control, the plates being calibrated with samples of known composition. Applied on a routine basis, satisfactory results were obtained for all standard types of magnesium alloys. (Al.)

SPECTROGRAPHIC ANALYSIS. *"The Routine Spectrographic Analysis of Magnesium Alloys,"* by G. P. Carter, *The Metal Industry* (London), vol. 50, No. 9, February 27, 1942, pp. 159-161. Al, Mn, Zn in magnesium alloys can be determined spectrographically using the Internal Standard method, the plates being calibrated by samples of known composition. Eight determinations have to be made to obtain an average within plus or minus 5 per cent of the chemically determined content. The average of repeated groups of eight determinations differ by only 2-3 per cent of content between each other. Time taken is one hour for eight determinations. It is reasonable to expect that the method can be adopted for the determining of other alloying constituents such as silver, tin, copper, antimony, calcium and silicon. (Al.)

Materials Handling

FOUNDRY. *"Handling Materials in Iron and Steel Foundry,"* by Francis A. Westbrook, *Steel,* vol. 110, No. 3, January 19, 1942, pp. 80, 82. Mechanical handling of materials has been worked out ingeniously and with efficient economy in the gray iron and steel foundry described in this article. The foundry is divided transversely at the center by a wide gangway. Gray iron castings are made on one side and steel castings are made on the other. All fitting and handling of sand, flasks, metal and castings is done by overhead electric traveling cranes, a long monorail and stationary hoists serving the larger molding machines. The sand hoppers are arranged in such a manner that they can be filled from containers suspended from the traveling cranes. The steel section bay is equipped with seven ladles suspended from single steel members supported on the same tracks as those used by the traveling crane. These give complete coverage even where a large number of molds are on the floor. The ladles are easily filled from the monorail extending from the furnaces and around the outside of the main bay and the molding machine bay. The molding machine bay is spanned by two 5-ton cranes which handle all the materials including the castings. The main bay where the heavier castings are made is spanned by three traveling cranes, one 10-ton and two of 15-ton lifting capacity. Further explanation of the backing and facing sand mixing equipment is discussed by the author. (M.H.)

Metallurgy

EXAMINATION. *"Macrographic Examination of Metals,"* by Neil Metcalf, *Canadian Metals and Metallurgical Industries,"* vol. 5, No. 1, January, 1942, pp. 2-5, 9. Probably the greatest strides in metallurgical control have been made in the past 20 years with the microscope. Macroscopic examination is a branch of metallurgy which ordinarily employs no elaborate or expensive equipment, and deals with the study of surface characteristics and the relatively gross features of interior structure which will be revealed on the observation of fractures, or on etching without resorting to the use of high magnifications. In applying the technique of macro-examination, care and experience are needed throughout, particularly in interpreting results. Such topics as the surfaces of metals, fractures and penetration-fracture are commented upon by the author and he tells of their importance in this type of study. In macro etching the use of chemical reagents is involved. How to prepare a sample for etching is explained by the author and also what steps are necessary to prepare a sample. In conclusion the author gives the reagents in common use for macro etching of aluminum and aluminum alloys and also copper and copper alloys. (Te.)

Molding

PLASTER. *"Plaster Patterns for Foundry Use,"* by Henry Plucknett, *Foundry Trade Journal,* vol. 66, No. 1326, January 15, 1942, pp. 35-36, 39. This is a discussion centered around the use of plaster patterns and how castings can be produced in half the time previously taken. Plaster of paris, due to its quick-setting properties, is the most suitable material. Means of controlling and how the material shall be diluted is discussed. Steps in making a mold for a broken connecting rod are related. A comparison is made between making a 20-in. cylinder with a wood pattern and a plaster pattern. Other large patterns are mentioned. Since plaster patterns will not stand rapping to the same extent as wood a new method is outlined to overcome this difficulty. (Mo.)

Non-Ferrous

AIRPLANE ENGINES. *"Non-Ferrous Metals in Modern Aero Engines,"* by E. Wood, *The Metal Industry* (London), vol. 40, No. 3, January 16, 1942, pp. 34-37. It seems that there is no large field for non-ferrous alloys other than the light alloys in aero-engine metallurgy. The alloys discussed in this article are used because they offer unique properties in particular applications and contribute materially to the present state of development of aero-engineering. The most important single application is the bearing metals, and the present position in this field is indeterminate. New fields are being opened along this line and what new engineering developments may occur cannot be determined. (N.F.)

ALPHA BRASS. *"High-temperature Internal Friction of Alpha Brass,"* by C. Zener, D. Van Winkle and H. Nielsen, *Metals Technology,* vol. 9, No. 1, January, 1942, pp. 1-5. An investigation of the internal friction of 70-30 alpha brass at high temperatures brought forth some interesting facts. At high temperatures this internal friction is larger, the smaller the grain size. Certain instances are cited in which recrystallization and grain growth were manifested in the internal friction measured during the annealing treatment. This internal friction depends upon temperature as if it were associated with a distribution of heats of activation, the maximum being about 20,000 cal. per mol. The observed dependence upon grain size indicates that this internal friction is due to internal surfaces. This high-temperature internal friction, whatever its source, constitutes a large part of the total internal friction at room temperature in specimens having very small grain size. (N.F.)

BARREL CASTING. *"The Production of a Bronze Pump Barrel Casting,"* by E. Longden, *The Metal Industry* (London), vol. 39, No. 24, December 12, 1941, pp. 370-371. This article describes the production of a pump barrel casting from design to the finished product. The casting is of simple form, it presents considerable difficulty when perfect freedom from defect and open metal structure is to be avoided. The casting must stand up well to hydraulic pressure, wear and corrosive influences. This is a detailed report telling how the pattern was made, how the casting was gated and all the other important facts connected with this castings production. (Ca.)

CASTINGS. *"Production of Sound Copper, Bronze and Brass Castings,"* by Hans Osborg, *Industrial Heating,* vol. 9, No. 3, March, 1942, pp. 328, 330. This article discusses the use of lithium alloys as an addition agent for use as a means for eliminating porosity in castings made from non-ferrous metals melted in gas-fired furnaces. (N.F.)

COPPER ALLOYS. *"The Constitution of Copper-rich Copper-silicon-manganese Alloys,"* by Cyril Stanley Smith and Walter R. Hibbard, Jr., *Metals Technology,* vol. 9, No. 1, January, 1942, pp. 1-4. The author after re-examination of the microsamples heat-treated in an earlier research on the constitution of copper-silicon-manganese alloys with over 90 per cent copper has shown the extent of the domain of the kappa phase that was previously over-looked. The results are presented in the form of isothermal phase diagram at temperatures between 450° and 800°C. Conductivity measurements have extended a portion of the alpha boundary to a temperature of 300°C. (N.F.)

PLANNING. *"Planning the Non-Ferrous Foundry,"* by N. K. B. Patch, *The Foundry,* vol. 70, No. 2, February, 1942, pp. 70, 136-139. This particular phase of this article deals with the core room, its location, the type of cores to be produced, type of floor to have, ventilation, illumination, storage space, selection of equipment and many other items of interest. The machinery put into the core room should be picked carefully and second hand pieces, with low prices, should be examined in detail. An economical distribution of the cores from the core room to the molders' floor is another important plan. In conclusion the author comments upon the use of core washes. (N.F.)

Patternmaking

CAST PIPE. *"Reminiscences of a Foundryman,"* by Tubal Cain, *Iron and Steel* (London), vol. 15, No. 4, December, 1941, pp. 126-128. The majority of cast pipes nowadays have the bolt holes drilled but formerly and still occasionally cast iron pipes are called for from jobbing shops with the bolt holes cored. Several methods are outlined whereby the job can be cored and they are discussed in detail by the author. (Pa.)

MATCH PLATES. *"Plywood Match Plates,"* by E. W. Horlebein, *The Iron Age,* vol. 149, No. 2, January 8, 1942, pp. 46-47. With the availability of aluminum for match plates restricted by the war effort, many foundrymen are turning their attention to plywood as a possible substitute. This article describes how a jobbing shop uses plywood match plates successfully, in some cases for runs as high as 5000 molds. (Pa.)

Pattern Equipment

MEDIUM CASTINGS. *"Pattern Equipment for Quantity Production of Small and Medium Castings,"* by F. G. Butters, *Foundry Trade Journal,* vol. 65, No. 1322, December 18, 1941, pp. 391-394, 396. Although much definite progress has been made in the improvement of pattern layout and mounting in recent years, especially in the motor, electrical and agricultural industries, little published data is available on this important phase of modern foundry practice. This paper does not introduce any one particular type of pattern equipment, but endeavors to survey briefly some of the more popular production methods the choice of which is governed by one or more of the following factors; type of molding machines available, type of pattern equipment, and quantities required and speed of production. The author discusses the variety of metals used in pattern construction, such as cast iron, brass, white metal, aluminum and other metals. Types of pattern plates are commented upon. Various type deep draw machines are discussed in concluding the article. (Pa.)

Refractories

ELECTRIC MELTING. *"Electric Steel Plant Refractories,"* by J. H. Chesters, *The Iron Age,* vol. 149, No. 10, March 5, 1942, pp. 37-43, 104-105. Induction furnace refractories, basic, acid and neutral, and merits of monolithic and brick linings are discussed in this paper on electric furnace refractories. The different ways in which such furnaces can be lined are briefly outlined and include pre-formed crucibles; monolithic linings, the steel liner method; monolithic linings, the asbestos liner method and brick linings. The author comments upon three methods used for studying the slag resistance of acid and basic refractories of the type used in induction furnace linings as baby induction furnace tests, crucible-slag tests and pill tests. (Re.)

FIRECLAY BRICK. *"Super Duty Fireclay Brick,"* by S. M. Swain, *Industrial Heating,* vol. 9, No. 1, January, 1942, pp. 86, 88, 90, 92, 94, 96. This article, which describes in some detail the methods of manufacture, properties and use of super duty fireclay brick, considers the peculiar combination of factors which are combined to give these brick their superior qualities. (Re.)

Scrap

RECLAMATION. *"Reclaiming Metal Scrap from Floor Sweepings,"* by W. A. Phair, *The Iron Age,* vol. 149, No. 5, January 29, 1942, pp. 41-44. The increasing stringency of raw materials is focusing new attention on the reclamation of metals from all sources. A new method used by a Westinghouse Electric plant to salvage non-ferrous metal from foundry floor sweepings, skimmings and kindred sources is described in this paper. This system, utilizing a concentrating table and three settling tanks, is reported to be economically self-supporting. (Sc.)

Steel

HARDENABILITY. *"Hardenability of Steel,"* by R. M. Parke and A. J. Herzig, *Metals and Alloys,* vol. 15, No. 2, February, 1942, pp. 241-244. In appraising and selecting engineering and machinery steels, hardenability is with increasing frequency the most important "property" considered. Although hardenability can usually be evaluated on the basis of composition, grain size, hardening temperature, quenching rate, etc., there is an occasional steel of anomalous behavior. The possible relation of dendritic segregation in the ingot to such behavior is discussed in this paper, and a test for segregation described. (S.)

Welding

NON-FERROUS METALS. *"Reactions of Non-Ferrous Metals in Fusion Welding Operations,"* by W. Andrews, *The Welding Industry* (London), vol. 9, No. 12, January, 1942, pp. 281-283. While discussing the applications of the welding processes, the author proposes to review those properties of each metal which are relevant and to deal with each metal, or alloy separately as far as each of the different processes is concerned. The metals of commercial interest in this study are copper and its alloys, the tin bronzes and bronzes and brasses. Under copper the author presents material on the effect of presence of oxygen, tough pitch copper and arc welding, uses of special filler rod and necessity of a satisfactory flux. (We.)

May Chapter Meeting Schedule

May 1
Ontario
Royal Connaught Hotel, Hamilton
D. J. REESE
International Nickel Co.
"The Cupola and Contemporary Problems on Material"

✦

Western New York
Touraine Hotel, Buffalo
E. C. BARRINGER
Institute of Scrap Iron & Steel
"Some of Today's Problems"

✦ ✦

May 4
Metropolitan
Essex House, Newark, N. J.
L. P. ROBINSON, Werner G. Smith Co.
"Variables Which Affect the Proper Baking of Cores"
Motion Picture—*"Sand"*—Whitehead Bros. Co.

✦

Western Michigan
Ferry Hotel, Grand Haven
PAT DWYER, The Foundry
"Gates and Risers"

✦ ✦

May 5
St. Louis
DeSoto Hotel
Annual Meeting and Election of Officers

May 8
Northern California
Whitcomb Hotel, San Francisco
A. E. ROTH
San Francisco Employers' Council
"Labor Relations During the War"

✦ ✦

May 11
Chicago
Top of the Town Restaurant
Annual Meeting
"Information Please"
Leader, JAMES THOMSON
Continental Roll & Steel Fdry. Co.

✦ ✦

May 12
Northern Illinois-Southern Wisconsin
Hotel Hilton, Beloit
Representative of Federal Bureau of Investigation
"F. B. I. in the Defense Effort"

✦ ✦

May 14
Northeastern Ohio
Cleveland Club
"Old Timers Night"

✦ ✦

May 15
Birmingham
Tutwiler Hotel
FRED HANSON
Electro Metallurgical Co.
"Alloys"

May 18
Quad City
Blackhawk Hotel, Davenport
W. R. JENNINGS, John Deere Tractor Co.
"Foundry Production Methods"

✦ ✦

May 21
Detroit
Rackham Educational Memorial
E. C. BARRINGER, Institute of Scrap Iron & Steel
"Scraps in the Foundry Industry"

✦ ✦

May 22
Wisconsin
Hotel Schroeder, Milwaukee
"Old Timers Night"

✦ ✦

May 25
Twin City
Kipp's Buckhorn,
Long Lake, Minn.
"Student Night"

✦ ✦

May 29
Ontario
Royal York Hotel, Toronto
Installation of Officers

Now Available to the Foundry Industry—the NEW A.F.A. CORE BOOK!

No book dealing with control of casting processes was ever introduced at a more opportune time than "Modern Core Practices and Theories," by H. W. Dietert. Here is the first book ever published devoted exclusively to the production and use of cores in the foundry, now available to an industry engaged in vital wartime production.

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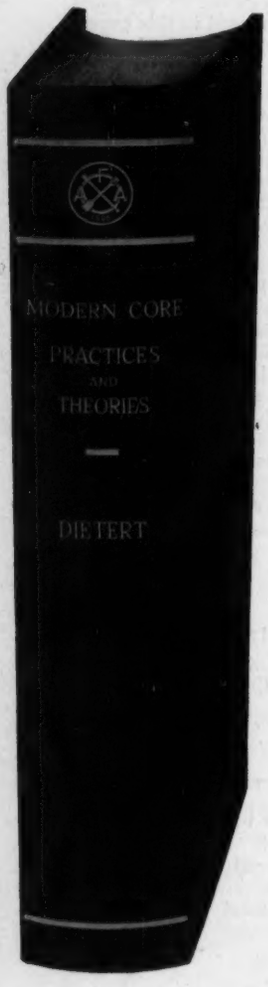

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- Core Binding Materials
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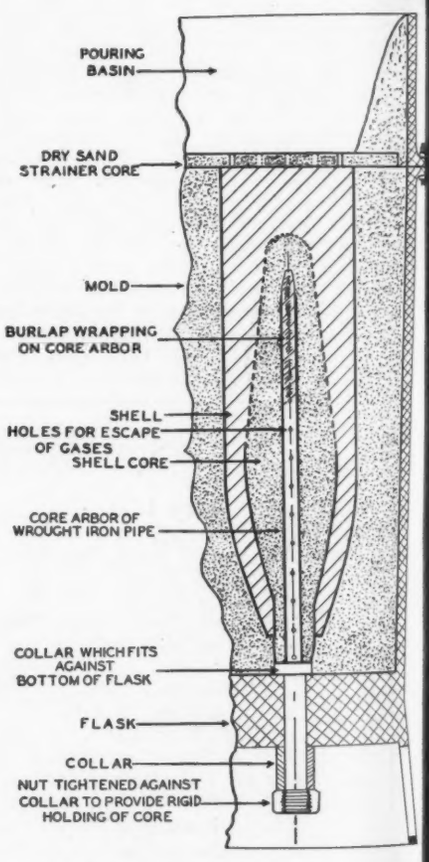
- Mixing Equipment and Operations
- Core Making Methods and Equipment
- Core Baking
- Core Coatings and Finishing
- Core Handling
- Core Testing
- Controlling Core Properties
- Core Setting
- Core Shake-out and Sand Reclamation
- Economics of Core Production
- Defects Caused by Faulty Cores

Illustration from new Core Book. Cross sectional view of core for cast iron shell showing one type of core arbor



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